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Addresses

CRIMINAL ABORTION IN ITS BROADEST SENSE.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON OBSTETRICS AND DISEASES OF WOMEN, OF THE AMERICAN MEDICAL ASSOCIATION, CHICAGO, 1908.

WALTER B. DORSETT, M.D.

ST. LOUIS.

I wish to express my deepest gratitude to the members of this, one of the most important sections of the American Medical Association, for having chosen me as their chairman. This honor comes to but few of us in a lifetime, and when I was selected I could not but feel that the honor carried with it a great responsibility. In accepting the position, it will probably be remembered, I said: "The success of a year's work would not be accomplished by the chairman but by the work of each individual member."

In looking over the program one must be impressed by the wealth of subjects to be discussed, as well as the names of the authors of the papers. This certainly should convince us that we are to enjoy a treat seldom offered in bodies of this character. Should I attempt to add anything of a scientific nature, I fear it would rather detract from than add to its interest. I have, therefore, concluded to present a subject that concerns us not alone as obstetricians and gynecologists, but as citizens of a great republic—"Criminal Abortion in Its Broadest Sense."

It is high time we should have a heart to heart talk.

The accepted definition of the word "crime" is "a breach of law, whether divine or human." Laws are rules, whether human or divine, for the government of the human race, and are enacted for the good of mankind. While the subject may be viewed from many standpoints, still there is a common ground on which we all must stand in order to view the subject in its composite form. It is reasonable to assume that the infraction of a law should carry with it a penalty; whether that law is human or divine, else it would be useless to enact laws; and no law holds good that does not have attached a penalty, which should be commensurate with the importance of the law. While there is probably no one in this audience who would deny that criminal abortion is fast becoming more and more common, still there may be many who may not be willing to take a decided step toward its suppression. The question may be asked: "Does it concern us as physicians? Does it concern us as members of the American Medical Association and of this section? Does it concern us as citizens of this, our beloved country?"

It is a rule in law that no case can be prosecuted without first obtaining sufficient information from those who possess it. The abdominal surgeon sees almost daily the results of the work of the abortionist, and the obstetrician can not be blind to the practice of the disreputable midwife and the unprincipled doctor. Admitting, then, that these statements are true, who should be concerned in this matter?

Possessing the information that we undoubtedly do, should it not be our duty as citizens, as well as physicians, and members of this important branch of the great American Medical Association, to suggest some means for the suppression of an evil that threatens such an onslaught to our civilization? When I say possessed with the information, I say it advisedly. Each and every member of this section can at this moment relate sad death-bed scenes that fairly make the blood run cold. Beautiful women are robbed of their lives, beautiful babes made orphans, and whole families wrecked, by a conscienceless scoundrel who goes free and unpunished by the law of our land.

It is useless to expect ecclesiastic intervention. The clergy do not seem to be at all concerned. To furnish them with this information is to throw away your time. Few sermons are preached from the pulpit for fear of shocking the delicate feelings of a fashionably dressed congregation, and the begging for money to save the souls of the far away heathen seems of more importance. They can not but realize the enormity of the crime from knowledge gained at the bedside of the victim of the abortionist. Yet they do not possess the moral courage to express their convictions to those to whom they are "called" to minister. Their education along biologic lines has, I am certain, in many cases been sadly neglected.

Young people marrying deliberately agree not to be parents for two or three years. They prefer to enjoy life by getting into and keeping in the social whirl. They may be, and often are, considered good and respectable people—possibly church-going people.

Self-induced abortion, or abortion produced by a fashionable or fad doctor, is, as we know, a fruitful cause of the horrible pus cases in which we are now and then called to operate. This fad doctor is one with a lucrative practice, and is often "the lion" at social functions. He it is who empties the uterus in cases of emesis gravidarum without first racking his precious brain in trying all recognized remedies and methods to check the vomiting. He it is who finds so many cases of contracted pelvis where it is utterly impossible to do anything but an early abortion to save the woman's life. He it is who finds so many cases of retention of menses, that require dilatation and curetment. He it is who finds the urine "loaded with albumin," necessitating an immediate emptying of the uterus to prevent death from Bright's disease. Such men and women prostitute the profession of medicine and should be exposed.

A careful review of our medical college announcements fails to furnish sufficient evidence of properly taught medical ethics, or medical jurisprudence (I say medical jurisprudence in contradistinction to legal medicine) to justify us at this time in hoping that we may receive much help from them toward the control of criminal abortion.

The average student is not impressed by precept or example with the enormity of the crime, and coming into practice, often a poor young man, is first shocked when he is asked to procure an abortion; but after the wolf has howled at the door for a time he yields to the temptation and often drops into the practice. Far from the Hippocratean teaching of the ancients have our colleges wandered by their utter disregard as to the morals of their students.

The secular press, that for money consideration, carries the offensive advertisements of abortionists and manufacturers of abortifacients in direct violation to our municipal, state and federal laws, will be slow in responding to a call to suppress criminal abortion, and not until the filing of information with officers of the law will they cease to carry into your household the filthy announcements as to how and where the pregnant mother can most easily and safely rid her womb of the products of conception.

Much has been said by the chief executive of our nation on race suicide, and much has been reiterated by other right thinking people; still, little has been done toward the enactment of new laws or the enforcement of those already on the statute books to punish those guilty of the crime. The prevalence of the crime is so patent, that few physicians can say that they are not frequently importuned by what society calls the "respectable element" to commit abortion. Pleas of limited income, the exacting demands of the social world, the desire to travel, the already too large family, and numerous other "reasons" are to you stories "too oft told" to be repeated here.

In an editorial in the *Illinois State Medical Journal*, March, 1908, attention is drawn to a statement of Justice John Proctor Clark to the effect that 100,000 abortions are annually committed in New York.

In a paper read before the Chicago Medical Society by Dr. C. S. Bacon it was estimated that from 6,000 to 10,000 abortions are committed annually in the city of Chicago, and that from 20 to 25 per cent. of all pregnancies terminate in abortion and that of this per cent. one-half are from induced abortion.

With feticide among our best element, and with a constantly increasing influx of degenerates from foreign countries, what can be expected of us as a nation a few generations hence? We, physicians, above all others, are best prepared to answer the query.

It is not my purpose to institute utopian plans, through or by which criminal abortion can be suppressed, still some suggestions may be in order.

1. The obligatory teaching of medical jurisprudence and medical ethics in its true sense in our medical colleges. This should be statutory, and medical examining boards should be empowered to enforce the laws of their states, and declare all schools not requiring a full course in medical ethics not in good standing and their graduates ineligible to practice medicine.

2. The enactment of good and sufficient laws and the amendment of insufficient laws now on our statute books.

This may raise the question as to how this can be done. Or by some it may be asked, are not our laws good and sufficient as they stand? In order to answer the last question, I propounded the following questions to a very able lawyer and had him prepare by way of answer a digest of the now existing laws in the several states and territories.

QUESTION 1.—Is the woman herself guilty of any crime? In how many states is she and how many is she not?

ANSWER.—In nine states a woman who solicits, submits to or performs an abortion on herself is guilty of a felony. In seven states the above offense is a misdemeanor, and in the remaining states and territories, viz., thirty-five, the woman is guilty of no crime.

QUESTION 2.—What is the charge and penalty for giving away, selling or advertising abortive drugs and drugs or appliances to prevent pregnancy?

ANSWER.—The charge is a felony in but twelve states and territories out of fifty-one, and the penalties vary from imprisonment for from one to ten years, and in some states a fine ranging from $20 to $5,000. In twenty states the offense is only a misdemeanor. In thirty states and territories there are no laws on this subject.

QUESTION 3.—What is the charge and penalty as dependent on the age of the fetus?

ANSWER.—In four-fifths of the states and territories the age of the fetus is immaterial.

QUESTION 4.—What is the effect of death of the woman operated on as to charge and penalty?

ANSWER.—If the death of the woman results from the operation, in eighteen states and territories out of fifty-one the crime is murder and the punishment is death or imprisonment for life. In six states it is murder in the second degree, and the penalty is imprisonment for life or for a term of not less than three years.

QUESTION 5.—May the offending physician or midwife have his or her license revoked?

ANSWER.—The license may be revoked in only fifteen states out of fifty-one. In thirty-two states there are no laws that can be invoked successfully for the purpose of depriving a physician of his license for this cause. In other words, he may successfully murder indefinitely and go unmolested.

QUESTION 6.—Is a physician who gives subsequent treatment allowed to testify, or is his information privileged?

ANSWER.—There is only one state, Missouri, in which it is provided by statute that a physician is allowed to testify as to facts learned while attending a woman on whom an abortion has been performed.[1]

Are not these answers startling? I think they show conclusively that our laws are inefficient and inadequate in most, if not all, of our states. Now arises the question, how can new laws be enacted and inefficient laws be amended? My answer is, through the influence of the American Medical Association, through its House of Delegates. Let us, the members of this section, through our representative in the House of Delegates appeal to this body and request the president of the

1. Section 2635*a* (Revised Statute of Missouri): In prosecutions for abortion or for manslaughter occasioned by an abortion or miscarriage, or by an attempt to produce either, or attempted abortion, or for any crime of which abortion or miscarriage may be a part of the essential facts to be proved, the dying declarations of the woman whose death is charged to have been caused thereby shall be competent evidence on trial of any person charged with such crime, with like effect and under like limitations as applying to dying declarations in cases of felonious homicide; provided, that the party offering such declarations shall first satisfy the court by competent testimony that such woman was of sound mind when said declarations were made; and provided, further, that no conviction shall be based alone on such declarations unless corroborated as to the fact that an abortion or miscarriage has taken place, and in all such prosecutions aforesaid any physician or medical practitioner who may have attended or prescribed for such woman shall be a competent witness in said cause to testify concerning any facts relevant to the issue therein, and shall not be disqualified or held incompetent by reason of his relation to such woman as an attending physician or surgeon.

American Medical Association to appoint a committee to be known as the Committee on Criminal Abortion, whose duties shall be to see that the state societies have appointed similar committees, whose duty it shall be to enlist the interest of their state legislatures in the enactment of good and sufficient laws against criminal abortion, and that this committee of the House of Delegates report annually as to the status of laws on criminal abortion in the different states, as well as what suggestions they may have to make in the prosecution of the cause.

Each state has an attorney-general, whose office is at the capital of the state. He is paid a salary by the state, and he, above all others, ought to be interested in the enactment and enforcement of wholesome and useful laws in his state. It is the duty of the attorney-general and his assistants to follow up the convictions of the lower courts for the various crimes. A man is tried in the circuit court or criminal court of one of the counties, and if convicted he appeals to the supreme court of the state. The county prosecuting attorney does not follow the case to the supreme court but the whole record of the case is written up and forwarded to the supreme court and it is the duty of the attorney-general to use his best efforts to uphold the conviction. He studies the case, writes a brief for the state and argues it in the supreme court. Many times he finds that he can not uphold a conviction because of some uncertainty in the wording of the law, or on account of some blunder made by the man who wrote it and got it passed in the legislature. The more convictions the attorney-general gets upheld, the greater reputation he gets. He is, if a studious man, better able to decide than the ordinary lawyer, whether a proposed law will meet the requirements of the state constitution and whether it will be held a valid law.

It might be suggested that this committee, or the state committee, acting in accord with the national committee, draft a bill, submit it to the attorney-general of the state and ask suggestions from him as to the proper wording of the law before first submitting it for passage by the legislature. When they are sure the law is in good form, then printed copies of it should be sent to every member of both houses of the legislature, and this should be followed by letters from influential physicians in every county of the state to representatives and senators of their respective counties, or by personal interviews, explaining the object, need and purpose of the law proposed, and they should be urged to vote for it. There is no doubt but we can in this way do much good. Let's do it.

DISCUSSION.

DR. W. H. WATHEN, Louisville: No subject could be brought before this Section which is of more vital importance in a moral, and I might say in a pathologic sense, than this. We who are doing abdominal and pelvic surgery know how frequently we are compelled to operate because of the induction of abortion. In a moral sense it is offensive to every honest doctor and to every honest citizen. This offense is not any more an offense on the part of the woman on whom the abortion is committed, be she married or single, than it is on the part of the person who commits it. I believe that in most of the cases in which I operate for pelvic trouble resulting from induced abortion, the abortion has been induced on the advice of a physician or done by a physician, and I have seen many cases in which abortions have been induced by members of reputable medical colleges. The matter is disguised by the fact that a woman six weeks or two months pregnant is often taken to a hospital for the purpose of curettage. Her uterus is curetted and the product of conception removed. In order to secure legislation there must be impressed on the profession the belief that, if there is any moral offense in destroying the life of an unborn child, the moral offense is just as bad four weeks after conception as if the child were killed at eight months. From the moment of conception the child is a spiritual being. Let us all join in our efforts to educate the people, the women and the men, of this country concerning the immorality of having abortions produced at any time and let us join in our efforts in a determination to ostracise any man who will produce a criminal abortion. Let us also join in efforts to have laws enacted that will make it a criminal offense, punishable by such penalties as the state sees fit to inflict, death or a sentence to the penitentiary, for any man producing an abortion.

DR. J. H. CARSTENS, Detroit: Laws have been enacted all over the country concerning murder, but still people commit murder. We have laws in some states concerning abortions, but people produce abortions just the same. With the peculiar development of our civilization, with the rapid bringing up by a very rapid process of evolution of people from a lower stratum of society to a higher, people have not grown morally as fast as they have otherwise. They think that there is nothing earnest in this world, that it is just made for them and for their pleasure, and everything that interferes with that pleasure they object to and try to do away with. This question of abortion involves the lack of moral responsibility and the superficial education of our girls all over the country. They are not impressed with the true import of life and the responsibilities of married women. They are not taught that a woman does not exist for social pleasure alone, or that she can take her place in society and have pleasure, but that she should still remember her moral responsibility and that it is good and noble and great to be a mother. If we can impress this idea on the minds of the people we can do something to prevent the committing of abortion. If we do not we shall never accomplish much by law. I believe that it is the duty of the medical profession to emphasize this view of the matter, to develop this view of moral responsibility, to try to induce women to have a love for children.

DR. HELEN C. PUTNAM, Providence: I want to support what Dr. Carstens just now said about education. For the American Academy of Medicine during several years I have been visiting our public schools to investigate the teaching of physiology and hygiene. I have included in that investigation inquiry concerning how teachers feel, and what they are doing, with reference to teaching the physiology and hygiene of sex. I have found many instructors anxious about the matter because they see in the schools the need of such teaching. I have found a few trained in biology doing admirable work which I wish to bring to the attention of the medical profession, hoping that physicians will encourage such teachers and will find more, especially in their own communities, to do similar work. These women trained in biology begin with children at about 8 years of age, and include those up to 14 or 15. They instruct through direct personal observation (the "laboratory method") concerning the origin and functions of life in plants and animals. After a year's work, especially if the children are 13 or 14 years of age, they give a frank "sex talk," telling them of the importance of life as they have seen it in plants and animals and comparing it with human life before birth and after. The children's minds in their course of study have traced evolution in Nature, and when they have this sex talk by the teacher they are not startled, but receive it as naturally as they learned of plant and animal reproduction. Parents are not offended with startling stories, for the children have grown to the subject naturally. The school committee is not disturbed, because there is no complaint from any source. If any wish to know more about what a few teachers are doing to create a changed public sentiment which shall support our views with regard to abortion, I refer you to the detailed reports which the Academy is publishing in its bulletin. While it is not possible to have such instruc-

tion in all the schools at once, we can begin with one teacher in a school in each community; see that she has a good training in biology and have her do good work in her school as an object lesson to others. If personal effort were made in this way I believe that within ten years we should have accomplished a great deal in changing the public attitude toward sex matters and the sacredness of parenthood that would do more than laws to reach the result we want.

DR. R. W. HOLMES, Chicago: I have had the misfortune for three years to be a sort of mentor on criminal abortion work in Chicago. During this period I have presided over a committee of the Chicago Medical Society to investigate, and to attempt to eradicate the evil; I have come to the conclusion that the public does not want, the profession does not want, the women in particular do not want, any aggressive campaign against the crime of abortion. I have secured evidence. I have asked different physicians, who either had direct knowledge of crime against the prisoner before the bar or who could testify as to her general reputation, to come and testify. They promised to come, but when the time for trial is at hand no one appears. On the other hand, so-called reputable members of our Chicago Medical Society regularly appear in court to support the testimony of some notorious abortionist. A Chicago attorney has told me that it is not possible to get twelve men together without at least one of them being personally responsible for the downfall of a girl, or at least interested in getting her out of her difficulty. I am convinced that legislation is not needed, at least, in Illinois. We have as good a law as perhaps can be made. It is the enforcement of law that is needed. What can you expect when a member of our legislature is backing financially and politically one of the most notorious abortion hospitals in Chicago? It is necessary to go back and educate the boy and girl concerning the meaning of sexual life. The fact should be taught that life begins with conception and not with quickening. Then perhaps in the coming centuries we shall have reached a time when there will not be abortions. I believe that half of the midwives of Chicago get their support from criminal abortion work, as I know definitely a quarter do. One midwife took out a license to help out the family exchequer. For one week she had a sign up: then the husband said that they could not run the risk of the police coming down on them. In that one week there were ten applicants for criminal abortion and not one for a confinement. I do not think that it is a good thing for the woman to be held criminally. Morally she is a criminal. If she is legally a criminal you can not get any evidence of it. I have evidence of this every day. I have repeatedly taken antemortem statements, with the express provision that if the woman recovers nothing shall be done, that only if she dies shall the person be prosecuted. I have positive evidence that prominent men in Chicago—and Chicago is not different from other cities—will commit abortion. What can one do? In a certain county society complaints were lodged with the censors concerning three physicians known by reputation and deed to be professional abortionists, and the censors refused to take action.

Fundamentally it is a matter of education which should be begun in the medical school. Until three years ago the school with which I am connected did not have any systematic instruction on criminal abortion. It had a little lecture by a lawyer who did not present the actual facts. Every medical school should have a course on that subject. There should be impressed on the men before they take up their work the dangers to the woman, to themselves and the moral responsibility assumed in the matter of abortion. If also the boy and girl in school are taught something of this they will grow up with moral stamina not easily overcome. They will know facts and will live accordingly. Many now make themselves believe that there is no life until the movements are felt. When the false teaching in this respect is put aside good will be accomplished.

DR. EDWARD T. ABRAMS, Dollar Bay, Mich.: For the past two years I have been a member of the Michigan legislature and also chairman of the committee on public health of that body. One of the bills which came before the legislature was drawn, I think, by the committee on legislation of the state medical society, and bore directly on the first question raised by our chairman to-day—whether or not the woman should be made a party to the criminality of the act. I introduced the bill at the request of the committee, and within twenty-four hours after I was called before the judiciary committee, which was composed entirely of lawyers, to answer the question whether or not I favored abortion. I received half a dozen letters from half a dozen circuit judges in the state of Michigan who were my friends, asking me how long since I had turned over a new leaf. I was assured by the best legal authority in our state that there would be no more powerful inducement for the concealment of abortion than to make the woman a party to the criminality of the act, because it would destroy absolutely the method of getting evidence. All the lawyers told me that. Per contra, we had absolutely no trouble in adding an amendment to our medical act giving the board of registration an absolute right to take from any practitioner his license to practice within the borders of the state after he had been convicted by due process of law of having committed an abortion without requiring further evidence than the records of the court.

DR. W. O. HENRY, Omaha: I believe that the medical profession should feel responsible for the education of the boys and girls in the public schools concerning this question. These boys and girls should be taught two things: First, the physical wrong and injury that results. Many do not know this until they have passed through the experience. In the second place, they should be taught the moral wrong. In a measure we should depend on the clergy for this latter. I believe that the clergy should be informed concerning the physical injury and the moral as well. I should be glad to see work carried out along the lines of education on this matter in the high schools, seminaries and colleges, and among men and women of the country through the medical men and the clergy.

DR. DENSLOW LEWIS, Chicago: It is well and good to enact laws and to punish the criminal practitioner and midwife, but what good does that do to the girl, and how does it save the next girl? I believe, as I have believed for many years, that this matter of education of the young in sex relationship and also regarding venereal infection is our sovereign duty and should be our chief privilege. I am delighted that at last the American Medical Association has created a Board of Public Instruction in medical subjects, but I am astonished to find in the report of this Board of Public Instruction, made yesterday, the statement that gynecologic subjects and matters pertaining to sexual questions can best be taken up through circular letters to physicians and carefully prepared monographs by some first-class authority in the medical profession. This is well, but action in this very important matter should be immediate. The girl requires no monograph from a first-class authority to learn the truth. She needs to know that impregnation and conception often follow the sexual act. Those of you who, like myself, have had charge for years of maternity hospitals, know that many young girls seen there have submitted to the sexual act without the slightest knowledge of the probable result. For that reason it is incumbent on us to urge on this Board of Public Instruction immediate action in the hope that another year may not pass without something being done so that every girl may know the consequence of indiscretion. The boy should know the dignity of virility and his duty and honor toward every woman. He should be taught the healthfulness of continence and the advisability of sexual control.

PROF. AUGUST MARTIN, Berlin, Germany: I believe that in Germany and everywhere all agree in condemning criminal abortion. It is forbidden by law; it is forbidden by the professional code of ethics. Laws have been issued in numerous communities to try to suppress criminal abortion, but I do not know of any which have had success. Our laws themselves place great difficulties in the way of legal action by forbidding us to speak about professional secrets. When we are called in a case of criminal abortion we are not allowed to give evidence unless the parties interested in the case give

us permission, and frequently this permission can not be given, as the poor patient is dead. But when a good chance is offered to give evidence then, indeed, in every case our courts condemn criminal abortion with the utmost severity. Joint efforts in condemning criminal abortion as on this occasion by and by will contribute to restrain the evil among professional men.

DR. R. S. YARROS, Chicago: To formulate laws and have them enacted is comparatively easy. To enforce a law is an entirely different thing. You can not enforce laws, as some of the speakers have already said, with which the public has little sympathy. Even if we could enforce anti-abortion laws, the problem would not be solved. I find that among the poor there is very little danger of race suicide. They have not learned yet to practice prevention, nor do they frequently resort to abortion. Their great love for their children is a factor in the situation, and in this respect the higher classes might well take a lesson from them. Unfortunately, they often have too many children, and one is inclined to preach moderation and restraint without regard to race suicide. The rich, on the other hand, go to the other extreme. They frequently have no better excuse than that it is inconvenient to have a child at this or that particular time. They have no difficulty in securing professional services to help them out of their difficulty. As for the unmarried victims, it is the disgrace that society has imposed on them, as well as the economic inconvenience, that drives them to commit abortion. It seems to me, therefore, that the most stringent laws and their enforcement would not remedy the evil. The proper education of the public on the subject is the most important duty before us. The blame should not always be placed on the woman. It should be realized that there are two parties. I do not want the woman not to take her share of the blame, but I want the man to take his. We all know that men frequently encourage the woman to have an abortion produced, and are willing to pay any amount of money for such services. In this city there has been considerable education carried on among women of the dangers of infection following abortion and the sex problem in general. The work has met with sympathy and enthusiasm, on the part of the women. We hope that the same kind of work will be carried on among men with the same success.

DR. FLORUS F. LAWRENCE, Columbus: Moral problems can not be settled by statutory enactments. A certain amount of restriction can be had and a certain amount of educational value must follow every statutory enactment, provided that enactment is enforced. It has been mentioned that there has been great difficulty in obtaining evidence to enforce the statutes in question. In Ohio one of the greatest stumbling blocks has been the question of viability. The courts determined that there was no great legal responsibility unless the fetus were of viable age. If our statutes are to accomplish the results they should we must first educate the public mind and morals to the belief that conception means human life, and that the interruption or destruction of that conception means murder just as much as if the child had been murdered with a bludgeon after it had been delivered into the world. Anything less than that is a mere travesty on the truth and on true morality. Something more must be considered if we are to accomplish that which we hope in these matters. There is an insidious psychologic element constantly at work in the pseudo-medical journalism of the country. Every now and then a journal which has been, or has purported to be under ethical management, passes into the hands of the most blatant charlatans of the country. One such within the past few months has passed from ethical management in to the hands of one who has made "peruna" a household word, and who has fought serum therapy and everything which modern truth and science have established as valuable in the saving of human life. Sixty thousand of his journals are to-day being distributed among the laymen of the country to educate the public against the truth and to believe that the doctors when they stand for truth stand for some selfish purpose. The time has come when we must educate not only the doctors but the laymen. We must reach the layman in a way that will go home to him and cause him to respect the teaching as he listens to the priest or reveres his Bible. The truth must go to him in such a way that he will not look on such teaching as an advertising scheme for the physician, but as truth and as something for which he pays. Then he will accept it. We have all learned that the man who gets something for nothing appreciates it not. We must start with a higher moral conception among medical men. We must realize our own professional responsibility to the laity. In our consideration of criminal abortion we must not feel that we are referring to abortion among unmarried women alone, but of abortion as it is found in general to-day.

DR. WALTER B. DORSETT, St. Louis: The city of St. Louis has not been remiss in her duty in this regard. A paper was read recently in one of our meetings by Dr. John Grant of St. Louis on the subject of criminal abortion. The meeting was attended by many of the laity and clergy. One clergyman, who was much interested, promised to preach a sermon before his congregation, but his board advised against it. It seems to me from this that things have come to a bad pass. In order, however, to show you what has been done and what can be done, not only in the enactment of laws but in the enforcement of them, I will quote from a letter which I received from Dr. Wheeler Bond, the health commissioner of St. Louis, in response to an inquiry I made of him. He said that when he accepted the position of health commissioner there were licensed physicians and midwives who concealed illegitimate under the pretense of legitimate practice, and charlatans who without any authority proclaimed themselves doctors and waxed fat on abortions. There were also lying-in institutions which advertised that they accepted only legitimate confinement cases, but which gave out the understanding that all cases would be received. The St. Louis Medical Society found on investigation no less than three of these abortion shops in which young women who came there to await their confinement were kept as prostitutes to pay for their confinement. During the following year many of these were put out of business. By the enforcement of the federal laws also we have in St. Louis dealt with a number of the advertising quacks. We must have good laws before we can expect results, and therefore I believe that we ought to take some action on the question.

IN MEMORIAM: NICHOLAS SENN; THE RESPONSIBILITIES OF THE HOUR.

INTRODUCTORY REMARKS BY THE CHAIRMAN BEFORE THE SECTION ON SURGERY AND ANATOMY, CHICAGO, 1908.

RUDOLPH MATAS, M.D.
NEW ORLEANS.

Distinguished Guests and Fellow Members: I feel, as your presiding officer, that I would be remiss in the discharge of my duty and grievously at fault with my own sentiments, if I failed to notice that this day is made sadly notable by the absence of one who for more than a quarter of a century was a Titan in our midst and whose voice, now stilled forever, thrilled and swayed our assemblies with the fervor of his eloquence, the magnitude of his accomplishments, the stimulus of his example and the vast power of his exhaustless energy—Nicholas Senn.

Vir præclarus et ornatus—Senn, the incomparable teacher, the peerless clinician, the scrutinizing pathologist, the perennial investigator, the faithful historian and charming raconteur; the world traveler, the philosopher, soldier, patriot and organizer; Senn, the philanthropist, the citizen of Chicago and of the world; Senn, one of the greatest masters of our art—will remain an imperishable name in the great pantheon of American surgery. His passing out of this community,

of which he was a *magna pars*, must be felt like the extinction of some great elemental intellectual force, as serene and unfailing and strengthening as the great natural forces that freshen and invigorate the earth.

In the shades of this great and hospitable metropolis, for so many years the center of his tireless activity; in the great city which he enriched by the products of his puissant intellect and generous bounty; in the heart of this great Northwest—so prolific in extraordinary men; here, in this region of vast potentialities, and following in the footsteps of his eminent predecessor and friend, Christian Fenger—he sowed and assiduously cultivated the vigorous seed of Teutonic genius and made it yield rich fruit in the cult of surgical philosophy and surgical art. Again, in the councils of this Association, which he strengthened by his wisdom and example; in the gatherings of this, his special section, where he stood as a high priest at the shrine of science; and throughout the American continent and wherever the science and art of surgery are taught and practiced and the language of medicine is spoken, the name of Nicholas Senn will always be mentioned with reverence, honor and affection.

His life work, his deeds and marvelous achievements have become a part of the history of surgery. His unparalleled labors have been told only too recently by more eloquent and gifted panegyrists to justify repetition on this occasion. As one who enjoyed the privilege of his personal friendship and encouragement in the earlier days of his professional life, and in the name of this great gathering of representative American surgeons, his associates and fellow workers, successors and friends, now assembled to prosecute and continue the great work with which his life was most closely identified—I join the medical profession and people of this great city, especially those within the immediate circle of his life, who mourn his loss with the greatest poignancy, and condole with them in profound sympathy at a common bereavement.

* * *

As the needle on the dial points to the hour when the "Clans must gather to the trysting place," we are reminded that the Section of Surgery and Anatomy will now assemble for the forty-seventh time since June 7, 1860, when it was created a separate arm of our national body. As the chariot of time has rolled by, each annual session has left its impress on the history of American surgery, an imprint which has yearly become wider, deeper and more indelible, as the parent organization has advanced in maturity, strength and prosperity.

The labors of our predecessors have not only contributed to our individual betterment as members of this guild, but they have added to the dignity and luster of surgery by their magnificent accomplishments. With this great heritage and its traditions, a measure of accountability for the safeguarding of the trust has also been handed to us, which adds to the grave responsibilities of the hour. As I stand before this great gathering of distinguished fellow-workers, privileged by your grace and good will to give the signal which is to inaugurate the forty-seventh session and launch it into history, I feel profoundly conscious of my own shortcomings and unworthiness, yet deeply grateful that I should be vouchsafed the privilege of gazing on the inspiring and magnificent panorama offered by the ever expanding conquests of American surgery, from this lofty height.

As I survey the field before me and read the past, the present and the future, in the faces of the stalwart men who represent the diverse generations of productive workers here assembled, including those who have accomplished, those now accomplishing, and those who are still to accomplish great deeds, and who are to exalt our traditions, I feel assured that one year more of fruitful endeavor and achievement will be added to the emblazoned and imperishable chronicles of our organization by the proceedings of the surgical section, which I now have the honor to open.

SIMPLICITY IN PRESCRIBING.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON PHARMACOLOGY AND THERAPEUTICS, OF THE AMERICAN MEDICAL ASSOCIATION, CHICAGO, 1908.

M. HOWARD FUSSELL, M.D.

PHILADELPHIA.

Are fixed formulas of drugs necessary or desirable in the treatment of disease? When the animal organism is injured by disease or traumatism there is an inherent tendency to self-repair. Usually this repair by Nature is toward complete restoration of the function of the organism. Occasionally the repair is vicious and harmful to the further normal use of the body. The physician's duty is to stand by and allow Nature to complete her work if the tendency is toward cure, to guide her if erratic, to correct her if vicious.

OUR KNOWLEDGE OF DRUG ACTION.

In so far as drugs are employed in thus aiding Nature, it must be remembered that, even with our properly boasted advance of knowledge, we are woefully ignorant of many of Nature's methods, and know little accurately of the effects of chemicals and drugs on these methods. We know practically nothing of the effects of the myriads of combination of drugs. We do know the physiologic action of enough simple drugs or their active principles so that we may properly employ them in helping Nature rid herself of injuries however obtained.

The physician, therefore, acts wisely when he uses only a single drug or a simple combination of drugs which experience has taught him or he has learned from others will do good but the limitation of which he recognizes. Of necessity one can not have the slightest idea of the effect of a mixture of drugs when he is ignorant of the effect of any one of the ingredients of the mixture. How often do we live up to this standard of action?

I believe that the host of nostrums, the myriads of ethical preparations, the many formulas of the National Formulary and the fixed formulas of the Pharmacopeia are the outcome of the natural desire of the laity for relief, coupled with their inherited belief from ancestors eons past, in the infallibility of drugs in curing disease. This latter, a mistaken belief of the laity, was fostered in ages past by the total lack of knowledge on the part of the physician of the causes of disease affecting the human family and of proper remedies for the relief of disease. Such men as Harvey, Louis, Virchow, Pasteur, Koch, have pointed the way along which every whit of our efficient therapeutic knowledge is to be gained.

TREATING THE PATIENT RATHER THAN THE DISEASE.

Given the exact knowledge of the diseased condition of a patient and its cause, therapeutics is usually simple. If we know the cause our present knowledge will either

enable us to remove that cause or it will not. The cause once removed, the patient recovers so far as his powers of recuperation allow. If we can not remove the cause, then the condition of the circulatory organs, respiratory, eliminating and digestive organs must receive our attention, and it seems to me in the great majority of cases we must as yet apply our various remedies in this way, be they drugs, surgery, hygiene, mechanics or what not.

Physicians when in practice must remember that of which they have full knowledge, that diarrhea, constipation, cough, dyspnea, etc., are but symptoms, the causes of which may be as far apart as the antipodes. We may be forced to treat these symptoms, because of their inherent danger or annoyance, but to treat a diarrhea which is caused by overeating and one which is caused by an inflammation of the intestine with the same remedy or combination is to fall far short of our duty. Therefore, it seems to me all formulas for any disease or set of symptoms are wholly out of place.

The sooner our young men are taught and come to realize what the master minds for ages have always taught, and what Waring wrote in 1866, that "the practice of treating a disease according to the name, without minutely examining into each particular case and adapting the appropriate remedies to the several indications which present themselves, can not be too strongly reprobated."

Then, and not till then, will fall out of fashion the prescribing of nostrums, the combining of drugs of unknown quantities, of ethical formulas and of any formulas ready made, be it found in the National Formulary, in the Pharmacopeia, in Non-Official Remedies or where not. As can be seen by examining the various works on therapeutics published about the time Waring wrote, all of the authors were insisting that physicians should study their cases and should not prescribe for the name of a disease from which the patient is supposed to be suffering. A century before isolated minds insisted on the same sound principle.

It needs but a glance at the various so-called ethical preparations with which the market is flooded to-day and the literature which finds its way into the office of every practicing physician to see that the same admonition needs to be given as often and with as much force to-day as it was announced by Waring in 1866.

Indeed, the lesson needs to be pushed home more forcibly than ever. Most firms of manufacturing chemists, or combination of individuals in the guise of pharmaceutical chemists, have on the road visiting the office of every physician detail men, plausible, cute, superficially informed, glib talkers, who take hours of the physicians' time to tell them that this combination for typhoid fever, or this for neurasthenia, or that for pneumonia, is efficacious, it is elegant, it is a favorite prescription of a famous physician. It is the rare young doctor who is not caught, and either puts in his own office these combinations or orders them from the pharmacist.

The young doctor, possibly without hospital experience, fails to grasp the fact that one compound prescription even of his own devising never fits numerous cases, even of the same conditions. He tries some combination offered by the detail man, his patient gets well (probably in spite of the medication), he then gets into the habit of prescribing some firm's formulas until either his own shelves or those of the neighboring pharmacists are filled with bottles for fixed conditions.

PRESCRIBING PROPRIETARIES.

Examination of the prescription files of any of the drug stores proves that proprietary preparations are used by reputable physicians to-day in a large percentage of the prescriptions. It will also be seen that there is a large percentage of prescriptions which contain more than three active ingredients which are not proprietary.

Dr. F. E. McCullough of St. Timothy's Hospital has been good enough to examine 6,200 prescriptions now on file in various drug stores of Philadelphia; 4,000 of these were from the files in 1907, 2,200 were from files of 1901 and 1902. In 1907 930 of these, or 23.25 per cent., were written either for a proprietary remedy to be used alone or contained a proprietary remedy in the body of the prescription, and 100, or 4 per cent., contained more than three active remedies.

It is extremely interesting to note that in the year 1901 exactly 32 per cent. of the prescriptions were for proprietary remedies, while in the year 1907 only 23.25 per cent. contained proprietary remedies, showing a reduction of 8.75 per cent. in the last year. This is an excellent showing for the result of the agitation against the use of proprietary remedies.

WHY THESE MIXTURES ARE USED.

Now there must be some reasons for the use of these various mixtures, some containing nine or more ingredients. Likewise there must be some reason for a physician prescribing or dispensing a "shotgun" mixture containing four or more active, and often incompatible, drugs. What are the reasons and what the remedies for the evil?

The greatest reasons for this defect in our practice, it seems to me, are ignorance, indolence and cupidity on the part of the physician, manufacturing chemist and pharmacists; ignorance on the part of both physician and pharmacist, due to faulty training or to the deliberate putting aside of facts well known at graduation, because it is much easier to follow than to originate; cupidity due to the desire for unusual financial returns, which can seldom come from scientific practice of medicine and pharmacy. The physician has either failed to learn the great lesson stated by Waring in the book above quoted, or has ignored it when practicing his profession.

The pharmacist may have been so impressed with the importance of drugs that he helps to fix the same error on the physician. He may easily impress his customers that there are certain combinations which are good for coughs and constipation. That druggist is almost unique who does not have his own "blood purifier" or vermifuge. He also, too commonly, will prescribe over the counter a concoction of his own combining, or a "patent medicine," for any symptom or ailment of which the patient complains. If pharmacists are to have the proper relations with physicians, if they are to aid in the proper use of drugs, they will refer every complainer to competent physicians who they know do not prescribe for symptoms, but who study their cases and prescribe for the condition found.

The physician or the pharmacist who thus fails in his duty has missed, or not appreciated, Waring's views:

> In prescribing medicines for the removal of disease, it should be borne in mind, that Nature tends to repair injuries inflicted on the body, and repair the disturbed conditions of the system without the assistance of any medicine whatever. The credit which is really due to this natural healing tendency is too often ascribed to some drug which the patient may happen to be taking.

UNSCIENTIFIC PRESCRIBING.

Both physicians who prescribe and pharmacists who advise a recipe containing many ingredients, either proprietary or original, are apparently ignorant of the fundamental principle of rational therapeutics, or they are too indolent to apply it. That is, before a drug or a remedy of any kind can be expected to aid in the cure of a disease, the history of the case must be obtained, a careful physical examination must be made, in which the condition of each organ must be noted. When this is done, and only then, can a remedy or a drug be rationally applied.

It is true that we give certain names to certain groups of symptoms which may or may not have a known cause, pneumonia, typhoid fever, neurasthenia, etc. It is also true that it frequently occurs that in spite of the most careful history and painstaking physical examination we are unable to find the cause of the symptoms present, or even to give a name to the ailment. If the physician has been properly schooled, however, by education or by experience, he will not be at a loss as to the proper actions in the case.

He must treat the conditions found present, of the heart, the kidneys, the respiratory organs, the nervous system, the digestive organs, etc. It makes no difference whether he recognizes the name of the disease or not, so long as he attempts to find the cause of the symptoms. If the medical schools are at all to blame for the present, happily decreasing, custom of using remedies for grippe, pneumoaia and typhoid fever it is because they have failed to grind into their students these important principles of medicine and surgery. When the millenium arrives and all physicians and pharmacists act together, the one in properly diagnosing the condition and prescribing for it, the other in limiting himself to the filling of the doctors' prescriptions, and abstaining from counter-prescribing and the doling out of remedies asked for rheumatism, constipation, etc., then will the cause of polypharmacy have disappeared, and with it the long array of proprietary mixtures. For the physician who studies his cases will soon learn from experience, if he has not from his school, that it is useless to mix in a conglomerate two or three stimulants, and sedatives, and worse than foolhardy to prescribe some firm's remedy for rheumatism, even though it be "the favorite prescription of some eminent practitioner." That in order to control the action of the heart, of the kidneys, etc., it is much better to use a single drug or drugs in very simple combination than it is to use such mixtures as the following:

SPECIMEN PRESCRIPTIONS.

Each fluidounce contains:

Tincture Pillulifera	120 m.
Syrup Lactucarum	120 m.
Tincture Cocellana	40 m.
Syrup Squill Compound	24 m.
Cascarin (P. D. & Co.)	8 gr.
Heroin Hydrochlorid	8-24 gr.
Menthol	8-100 gr.

R. Natrii Iod. 3iss
Natrii Brom. 3iii
P. Glandulua Thyreoidæ 3iss
Ext. Ignat. Amara ..... gr. x
Ext. Hydrastus 3i
Ext. Valerian 3i
Ext. Sumbul 3i
Cap. xxx.
Sig.: One Capsule at Mealtime.

Each two fluidrams is said to contain:

Hexamethylenetetramine	7½ grs.
Saw Palmetto	5 grs.
Santol	2½ grs.
Coca	2½ grs.
Nux Vomica	¼ gr.

The first of these is a so-called ethical preparation. The formula is taken from an advertising page of the *American Journal of Pharmacy*, January, 1907. If it is of value, can there be any doubt that the 8/24 of a grain of heroin is the active ingredient? And this active ingredient is not indicated on the label. Would it not be better, cheaper and more scientific to prescribe the heroin? But perhaps the preparation is a "good repeater," as is claimed by the manufacturers in another advertisement. The second is culled from a prescription file and was written during the last year. The writer is a good doctor. The third is taken from page 136 of "New and Non-Official Remedies." It should have been omitted, if the plea for simple medication here made is of any value.

Ignorance of how to write a prescription may deter beginners and may be one reason why young physicians fall easily into the habit of using ready-made mixtures. If this is true, then it must be the duty of our medical schools so to implant a knowledge of the use of drugs and remedies that the recent graduates will not be led away by agents of any of our manufacturing drug firms.

INDOLENCE.

The normal indolence common to us all finds great encouragement in the fact that many ailments, indeed the vast majority, will be cured by Nature, if the patient is but let alone. It is, therefore, tempting to take chances with all patients who apply, instead of making examinations carefully, to tell the patient he is suffering from some certain disease and prescribe for him or give him a remedy we may fancy will relieve. This is all the ordinary patient desires, and he wants to be given some remedy for that name. How often a patient comes into the office and says, "Doctor, please tell me what ails me." He then asks what the drug is in the prescription which has been given. When the laity demands careful treatment they will get it from all and not only from a few.

CUPIDITY.

Cupidity on the part of drug firms leads to the exploiting of all sorts of combinations with which the ignorant, and the enlightened but careless, physicians are waylaid. Far be it for me to say or to intimate that all the firms of manufacturing chemists are a menace. To some of these firms we owe many of the most useful remedies we have to-day, but many of the combinations of capital which call themselves drug firms trade on such good names as are known to us all. They are composed of irresponsible individuals, who have no other desire or motive than to sell goods. Such firms' preparations can not be too strongly condemned. Most firms make extravagant claims for preparations and combinations without sufficient data.

THE REMEDIES.

First, our schools, both of medicine and pharmacy, must send out into the world men so grounded that the one will diagnose his case and prescribe for the condition found present, and the other will compound the prescriptions written for, out of the best drugs. Proper education is absolutely necessary. A deep sense of the

obligation of the physician to the laity and to his co-laborer, the pharmacist, is equally necessary. I very much doubt if the majority of practicing physicians have any accurate knowledge of what the U. S. Pharmacopeia is. I doubt if one in fifty physicians have either the Pharmacopeia or a dispensatory on their shelves.

Ignorance must breed disuse. I believe that there are still many errors in the Pharmacopeia. For instance, I can imagine no good reason for the insertion of the formula for the clay poultice; certainly the mixture is useless, and it would appear to give the manufacturing firm a good basis for recommending its use, because it is now official. Like remarks can justly be made of the compound powder of morphin and the compound acetanilid powder. There are about 1,000 remedies in the Pharmacopeia; of these sixty-eight are compounds. If these compounds are examined it will be seen that while they comprise but 7 per cent. of all the remedies in the Pharmacopeia, they are, for the most part, rational; that is, they are not of the conglomerate class that I have quoted. All the teachings of this book and of the dispensatory point to the proper method of using drugs, viz., either singly or in such a simple combination that the one will not antagonize the other, but may actively help. These two books, therefore should be on our shelves; the doctor should familiarize himself with their contents and use them, rather than rely on manufacturing firms for his combinations, or combine for himself a senseless lot of drugs. The little volume, "New and Non-Official Remedies," published by the American Medical Association for the Council on Pharmacy and Chemistry, should be of great value to practitioners of medicine. The Council on Pharmacy is composed of learned, hard-working men, illy-paid for their labor. Sollmann[1] gives a warning, however, when he says that the rules for admission of preparations to the pages of the report should be made more exacting.

I feel that it would work vast good if compound prescriptions, mere pharmaceutical mixtures, like the one quoted, were omitted. The following is another example of what seems to me an error:

ELIXIR VIBURNI COMPOSITUM (STEARNS).

An elixir each 30 c.c. (one fluidounce) of which is said to represent: Blackhaw, 2.6 gm. (40 grains); cramp bark, 2 gm. (30 grains); squaw vine, wild yam, Jamaica dogwood and saw palmetto berries, of each 1.3 gm. (20 grains); pulsatillo, 0.65 gm. (10 grains), in a menstruum containing 17 per cent. of alcohol.

The admission of such mixtures, it seems to me, must bring discredit on the book and work harm to the Council.

What is the active principle or the physiologic actions of a single one of the drugs in the compound? Unfortunately there are many such articles admitted. They, one and all, violate the principle, the sound practice, of prescribing only drugs of which we know something singly or in simple combination. The Council of Pharmacy through its publications must teach physicians what *not* to use as well as what articles are useful.

The pharmacist can help or hinder the physician in his aim toward correct prescribing.

First, he must be a learned compounder of drugs, a graduate from a reputable school of pharmacy.

Second, he must not do counter prescribing. He must by argument with both physician and laity, and particularly with the latter, teach that ready-made formulas are as a rule not desirable. His arguments will have great weight.

Third, he must absolutely never recommend ready-made formulas for any disease. As rapidly as possible pharmacists should rise to the position of drug compounders only and keep no patented or proprietary remedy in their shops.

CONCLUSIONS.

Physicians should use simple drugs or simple combinations of drugs of known value directed to the condition found.

Pharmacists should confine themselves to drug dispensing and discourage self-medication by the laity.

189 Green Lane (Manayunk).

1. THE JOURNAL A. M. A., May 9, 1908.

Original Articles

DIPHTHERITIC GENITAL INFECTION SIMULATING PUERPERAL FEVER.*

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The gravity of puerperal fever, its widespread prevalence, and its persistence in spite of all the safeguards thrown about the puerperal patient by the adoption of modern aseptic precautions, make any addition to the literature of this subject acceptable.

It is, unfortunately, the almost universal custom to call every septic fever occurring during the puerperium "puerperal fever," and this arises from the fact that bacteriologic examinations are not made often enough to determine the exact cause of the fever, and thus properly to classify the variety of the disease. In the light of our present knowledge, it is as manifestly improper to call a diphtheritic genital infection in the puerperal woman "puerperal fever" as it would be to call a malarial infection occurring during the same period by a similar name.

We know that true puerperal sepsis is one of the most fatal infections we are called on to treat, while diphtheritic infection, if recognized early, is one of the most hopeful. Early recognition of the disease by bacteriologic examination, and the resort to anti-diphtheritic serum should enable us to cure every one of these cases, and thus contribute materially to the reduction of the mortality at this critical period of woman's life.

The puerperal infections are best classified etiologically by Dr. C. S. Bacon,[1] of Chicago, as follows:

1. Streptomycosis and staphylomycosis (true puerperal fever).
2. Colon bacillus infection.
3. Pneumococcus infection.
4. Diphtheria.
5. Gonorrhea.
6. Sapremia.
7. Puerperal tetanus.
8. Mixed infections.

All the older text-books on obstetrics mention diphtheria as a not infrequent cause of puerperal fever, but as they antedate the discovery of the Klebs-Loeffler

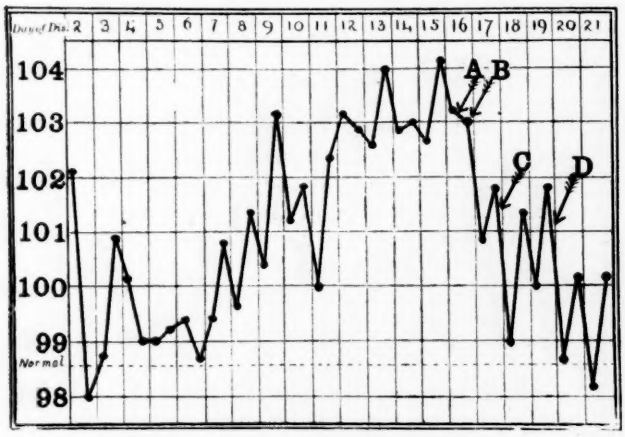
* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Bacon, C. S.: Lectures on Obstetrics.

bacillus, they make no mention of any cultures, consequently the conclusion must be drawn that not all the exudates which they describe were due to that particular germ. It is well known that not all those cases in which there is a grayish or yellowish membrane lining the vagina, covering the cervix or spreading over the torn surfaces of the perineum, and which leave a bleeding surface on removal are true diphtheria. The investigations of Bumm and Widal have shown that the majority are due to a superficial necrosis, caused by the streptococcus alone or in conjunction with other organisms, usually saprophytes. We must not be led into the belief that a puerperal woman with an exudate in her throat and also on her genitals is suffering from diphtheritic infection; but only after cultures have been made from the genitals and the Klebs-Loeffler bacillus demonstrated are we justified in resorting to the diphtheria antitoxin treatment.

Erich Martini[2] states that the first definite report confirming the presence of bacteria in the blood of patients suffering from puerperal fever dates from the year 1869. Coze and Feltz[3] demonstrated streptococci (chain bacilli), and by subcutaneous injection succeeded in fatally infecting a guinea pig. They failed to procure pure cultures, however.

In 1872 Waldeyer[4] described spherical bacteria



Temperature chart in a case of diphtheritic genital infection simulating puerperal fever. A, antitoxin administered, 3,000 units; B, antitoxin administered, 3,000 units; C, antitoxin administered, 2,000 units; D, antitoxin administered, 2,000 units.

(cocci), which he demonstrated in the diphtheritic exudate or membrane from the uterine mucosa of four patients who died from puerperal fever. He also demonstrated their presence in the puriform masses of the uterine lymph vessels and ligamentum lata, in the peritoneal exudate—in the liquid as well as in the pus flakes—and once, also, in the pericardial fluid. In all his cases the bacteria were located outside of the pus cells. The pure culture of these bacteria was affected after Koch had solved the problem of pure culture. Czerniewsky was the first to succeed in obtaining pure cultures of the exciting cause of puerperal sepsis; in this manner he was able to demonstrate the presence of streptococci in the lochia of mild and severe cases of puerperal fever.

Comparatively few cases of diphtheritic fever are on record, and all writers regard the condition as a serious one. It was not until 1895 that true diphtheritic fever during the puerperium was demonstrated by the culture of Klebs-Loeffler bacillus, and its treatment by antidiphtheritic serum instituted.

The following table summarizes the reported cases:

LIST OF REPORTED CASES.

Author.	Admin. dipth. antitoxin.	Bacillus demonstrated.	No. of cases.	Result.
Bumm[5]	Yes	Yes	1	Recovery.
Nisot[6]	Yes	Yes	1	Recovery.
Haultain[7]	Yes	Yes	1	Recovery.
Longyear[8]	No	Yes	1	Recovery.
Longyear	No*	Yes	1	Death.
Longyear	Yes	Yes	1	Recovery.
Longyear	No	Yes	1	Recovery.
Longyear	Yes	Yes	1	Recovery.
Longyear	Yes	Yes	1	Recovery.
Jacobs[9]	Yes	Yes	1	Recovery.
Williams[10]	Yes	Yes	1	Recovery.
Clark[11]	Yes**	Yes***	1	Recovery.
Favre[12]	No	Yes	1	Recovery.
Piassetzky[13]	Yes	Yes	1	Recovery.
Lop[14]	Yes	Yes	1	Recovery.
Orband[15]	Yes	Yes	1	Recovery.
Ungara[16]	Yes	Yes	2	Recovery.
Raw[17]	Yes	Yes	3	2 recoveries
Fitzgerald[18]	No	No	1	Recovery.

* Antistreptococcus serum used.
** Double serum used.
*** Staphylococci also found.

J. Anderodias states that Mahieux, in 1857, published an observation of a gangrenous diphtheria occurring in a recently delivered case which was transmitted from the mother to the infant. This diphtheritis was carried from the uterus to the mouth, affecting the infant also, and terminating in the death of both.

There is little doubt from his report that these cases were due to infection by the bacillus of Loeffler, although this bacillus was at that time unknown.

Hervieux published a case in 1866[19] which was evidently true diphtheria, but here also the science of bacteriology had not been developed.

In 1885 Garrigues[20] published an article on puerperal diphtheria, in which he describes the appearance of the diphtheritic exudate occurring in the genital region of recently delivered females. His observations are based on 29 cases. As diphtheritic cultures were not made, it is, of course, impossible to state whether they were all purely diphtheritic or not.

I present the following case:

Patient.—Mrs. M. K., Irish, aged 37, housewife.

History.—Patient had had no serious illness since childhood, but had been pregnant four times. Her last pregnancy required instrumental interference, but there was some edema during all four pregnancies. She had had no miscarriages or abortions. During the present pregnancy there had been some headache and emesis. Had been a moderate edema of the face and extremities during the last three months. The urine had been diminished in quantity and muddy in appearance.

Labor.—Labor came on at 5 a. m. June 21. The pains, at first weak, became very strong, but the patient was not able to deliver the child. She had two convulsions during the day. Forceps were applied at 2 p. m., but the attending physicians were unable to effect delivery. Patient who was delirious was admitted to the obstetric service of St. Luke's Hospital at 11 p. m. of the same day. Examination revealed a very extensive

2. Martini, Erich: Deutsch. med. Wchnschr., 1905, xxxi.
3. Coze and Feltz: Gaz. méd. de Strasbourg, 1869.
4. Waldeyer: Arch. f. Gynec., 1872, iii, No. 2.
5. Bumm, E.: Ztschr. f. Geburtsh. u. Gynäk., 1895, xxxiii.
6. Nisot: Bull. Soc. belge de gynéc. et d'obst., Brus., viii.
7. Haultain, F. W. N.: Lancet, London, 1897, 1.
8. Longyear, H. W.: Am. Jour. Obst., 1897, xxxvi.
9. Jacobs: Jour. d'anat., Dec. 12, 1897.
10. Williams, J. Whitridge: Am. Jour. Obst., 1898, xxxviii.
11. Clark: Boston Med. and Surg. Jour., 1898, No. 2.
12. Favre, A.: Ann. Soc. obst. de France, 1899.
13. Piassetzky, A.: Ejened. jour. Prakt. Med., 1900, vii.
14. Lop: Vull. Soc. d'obst., Paris, 1904, vii.
15. Orband: Allg. Wien. med. Ztg., 1906, li.
16. Ungara, V.: Rassegna d'ostet. e ginec., 1906, xv; Centralbl. f. Gynäk., Jan. 18, 1908.
17. Raw: Jour. Obs. and Gynec., 1905, v.
18. Fitzgerald, Brit. Med. Jour., ii, 1895.
19. Hervieux: Gaz. d. hôp., 1866, xxxix.
20. Garrigues: New York Med. Jour., 1885, xlii, 354.

edema of the entire body, especially noticeable at the umbilicus and external genitalia. The umbilical cord was prolapsed and pulseless. Fetal heart tones and uterine souffle could not be heard. The position of the child was left occipito-anterior. The cervix was partially dilated. The patient was anesthetized and a craniotomy performed. The placenta was removed by expression, after which an intrauterine douche with sterile water was given. The fetus was a male, weighing ten pounds, was full term and not macerated. Two hours subsequent to delivery the patient had a severe convulsion, which lasted five minutes. This was followed in four hours by a second convulsion, which lasted three minutes. The patient became rational nine hours after delivery and did not again lose consciousness. At this time there were emesis, involuntary passage of feces, and incontinence of urine. The first specimen of urine was obtained by catheter at the time of admission. It contained albumin, blood and granular casts. The first twenty-four-hour specimen also contained the above, was acid in reaction, and had a specific gravity of 1018. The quantity of urine was small. On the first day there was a leucocytosis of 17,500.

Treatment.—The early treatment was directed against the nephritis. It was as follows: Potassium acetate, grains 15, every four hours; calomel, grains 5, followed by elaterin, grain 1/30, all in broken doses; sweats and rectal injections of physiologic salt solution with coffee. Four days after delivery the involuntary passage of feces and incontinence of urine ceased; the edema became greatly reduced, and the patient felt much improved. June 30 there was a slight chill, followed by emesis. July 2 the case was diagnosed and treated as "septic peritonitis," and the patient was transferred to the gynecologic service, when she came under my care. Vaginal smears were made, and these contained many bacilli, whose protoplasm stained unequally. No cocci were present. A slight membrane was visible in the vagina at this time. The patient was free from pain, but was restless and there was some twitching of the fingers. She had occasional emesis. Smears were again made on July 4, and the same irregularly staining bacilli were obtained from the vagina; these were not present in smears made from the uterine discharge. Cultures from the vagina were made on Loeffler's medium. In twenty-four hours there appeared colonies of the diphtheria bacillus. Smears showed the same bacillus, which were present in the vaginal secretion. Three thousand units of diphtheria antitoxin were administered, when the temperature fell from 40.1 C. (104.2 F.) to 39.4 C. (103 F.) by the following day. Three thousand units more were given and the temperature fell during twelve hours to 37.9 C. (100.3 F.). Forty-eight hours later the temperature was above 37.8 C. (100 F.), two thousand units were given and the temperature fell that evening to 37.2 C. (99 F.). During the next three days the temperature varied, reaching 38.5 C. (101.3 F.) the evening of the third day. The following morning 2,000 units more were injected and the temperature fell to 37 C. (98.6 F.) that night. It fluctuated slightly during the next three days, reaching 37.8 C. (100.1 F.), but fell to normal by the morning of the fourth day. The patient received in all 10,000 units of antitoxin.

July 6 vaginal examination was made under anesthesia and the following record made: "A dull-gray membrane, with slightly elevated margins, is seen just inside the introitus. It extends upward toward the cervix. The membrane is in the form of scattered patches, the largest of which lies to the right of the anterior column; the mucous membrane at the margins of each patch has an angry appearance; at one point near the vulva is an irregular gangrenous area. There is a dense membranous patch, one centimeter (⅜ in.) in diameter, on the anterior vaginal wall. When this is removed there is some oozing of blood from the denuded surface. Around the cervix is a dense membrane, and here, at the site of a recent cervical laceration, is also found a markedly gangrenous area."

Later History.—An intrauterine douche of sterile water was given at this time, but only a few fibrous threads came away; a single strip of iodoform gauze was inserted into the uterus. The tincture of the chlorid of iron was given in glycerin, and vaginal douches with protargol and Thiersch solutions employed. July 7 the pulse was weak and the patient was prostrated; she could move her limbs only with the greatest effort. A second intrauterine douche was given, and, as before, nothing came from the uterus. July 8 the condition of the vagina was much improved. The membrane was fast disappearing, and the marginal mucous membrane had lost its angry appearance. The pulse remained weak, and camphor in oil was given hypodermically, 2 grains every three hours. There was a slight discharge of blood from the vagina on July 9 and 11. The diphtheria bacillus had disappeared from the vagina by July 13, and the site of the former membranes now appeared like a very superficial erosion.

The patient made a slow and uneventful recovery, and was discharged in good condition August 7, seven weeks after admission. Cultures of the Klebs-Loeffler bacilli from this patient proved fatal to a guinea-pig, and pure cultures of the germ were then made from the animal, proving beyond all doubt the exact nature of the infection.

Foulerton and Bonney,[21] on investigating puerperal infections, state that in seven cases a diphtheroid bacillus was found in the uterus. The characteristics of the diphtheroid bacillus taken from two cases showed it to be morphologically undistinguishable from the *Bacillus diphtheriæ*, but that it otherwise presented the following points of distinction:

1. It did not produce any acid in glucose peptone broth after six days' incubation, at a temperature of 37 C. (98.6 F.).

2. It was non-pathogenic for the guinea-pig.

They found a "similar diphtheroid" bacillus in the cervical secretions of non-pregnant women, but it seems probable that in the two cases of puerperal fever in which it was found the organism was present in the pathogenic capacity. The bacillus described is possibly the same species as that found by Halle in the vagina, and believed by him to be the pseudodiphtheria bacillus of Weeks. They say further, "that it is on record that the *B. diphtheriæ* has been found several times in the uterus or in the vaginal lochia, but, so far as they can ascertain, the description of the bacillus found in these cases would apply to the 'diphtheroid' bacillus equally as well as to the true *B. diphtheriæ*."

In spite of these researches, and bearing in mind the excellent results obtained from the use of the antidiphtheria serum, where the bacillus diphtheria has been demonstrated by culture, I do not think it necessary to resort to the inoculation of a guinea-pig, except in those instances in which such a procedure is entirely feasible.

Most of the case reports show that active local antisepsis was instituted by means of the vaginal douche containing mercuric chlorid, iodin solutions, or other powerful agents. The general experience in the use of diphtheria antitoxin would seem to prove that these measures are unnecessary, a simple boric acid douche for cleansing purposes being the only thing required.

The diphtheria invasion does not seem to have any definite period after confinement for making its appearance, the time varying from the third to the twenty-sixth day. Pain in the genitals is apparently one of the prominent symptoms.

The membrane covering the genitals is grayish-white in color, with a red coloration around the edges. In all but one of the reported cases its appearance was accompanied by fever, ranging from 37.8 C. (100 F.) to 40 C. (104 F.), with a corresponding acceleration of the pulse.

All of the patients recovered in those cases in which the antitoxin was used. Every puerperal woman devel-

21. Foulerton and Bonney: Lancet, London, 1905, I.

oping a fever, more especially where a membrane has made its appearance, should have a bacteriologic examination made from the genitals, and the variety of the infection classified.

Welch, of Johns Hopkins, says: "The efficiency of the antitoxin treatment has passed beyond the experimental stage, and is settled beyond all doubt." The initial dose should not be below 1,500 units, if the infection is evidently a mild one. I believe, however, we would get quicker results if we were to commence with 3,000 units, to be repeated in six to eight hours, if no improvement is manifest. When enough of the serum has been given, the membrane shrivels, the pulse becomes stronger, the temperature falls, and the general condition of the patient is improved.

After the favorable experiences in the use of the diphtheria antitoxin serum in the cases reported, there is no doubt that in all patients suffering from diphtheritic puerperal infection, where the Klebs-Loeffler bacillus has been demonstrated, diphtheria antitoxin is a specific for the disease. Curettement, either with a sharp or dull curette, or with the finger, should be scrupulously avoided, as, the membrane being densely adherent, its removal results in leaving raw surfaces which serve as open avenues for the absorption of a greater amount of toxic material.

I wish to acknowledge my indebtedness to Dr. Charles P. Clark, for his painstaking attention to the details of the bacteriology of this case.

DISCUSSION.

Dr. A. Belcham Keyes, Chicago: Years ago I started in general practice. I have many records in my office of faucial diphtheria in which the temperature was absolutely normal and other cases with a temperature of 99.5 to 100 F. in the most malignant faucial diphtheria. Uterine diphtheria should not necessarily differ in this regard from the faucial; neither one presents any chill, there being a *schleichende*, creeping, insidious onset and only a moderate rise of temperature of, say, one or two degrees, unless there is mixed infection, when the temperature may reach 104 or 105 F. From the history of Dr. Cuthbertson's case I should say that this was a mixed infection. It seems to me that we should not wait for the culture in suspicious cases, whether mixed infection be present or not. I believe that this is a very important point. Diphtheria antitoxin should be injected first and the infection proved by the microscope afterward. I believe that a larger amount of antitoxin should have been used at once. Some years ago we gave smaller amounts. To-day we give 10,000 units at once, without waiting; indeed, we may give large amounts like this to very small children. Therefore we should not hesitate in the case of a puerperal woman. A point of special interest in the paper relates to the carefulness with which the bacteriologic work was carried out. As Dr. Cuthbertson said, we have much data on puerperal fever as a general infection during the puerperium, but we have very few true data compared to the number of patients who have died of the actual bacteriologic infection of these cases. To treat them intelligently in the future I think we should be extremely careful concerning the bacteriologic findings.

Dr. A. Ernest Gallant, New York: The subject is one of great interest to those who see many cases in consultation and from the standpoint of the man who is not in the place where the bacteriologic examination can be quickly made. If we wait until the bacteriologic report comes to us, we shall have lost a golden opportunity. Some years ago, before the days of antitoxin, I was in an institution where there were 400 children, among whom there were a large number of diphtheritic cases. I saw various experiments and methods employed in treating the disease, and I could not help smiling when I remembered the plan told to my mother by a neighbor when we had diphtheria in the house. One child was ill with diphtheria and six had sore throats. A neighbor advised my mother to use powdered sulphur blown into the throat through a glass tube. The child not so treated died and the rest recovered without diphtheria. I have tried the same experiments in New York City, sending specimens to the Board of Health and having the report returned of diphtheria. After I applied the sulphur it was impossible to find a trace of the diphtheria bacilli. The point is, that in the case of membrane vaginitis, either postpartum or otherwise, I should not wait for the bacteriologic report, but would apply the powdered sulphur in this way. After that no bacteriologist could find any diphtheria germs. It is especially valuable, when using the sulphur, to insert a roll of gauze as a wick. The temperature usually returns to the normal within thirty-six hours. I recall one case in which the entire vagina was one cylinder of black exudate. The sulphur treatment was the only one carried out, and the next day the temperature was down to normal. The French use powdered sulphur in the treatment of diphtheria, and, in spite of our antitoxin treatment, their results are far superior to ours in the treatment of diphtheria and the sequelæ are very much less. I think that the method is an important one to bear in mind and one which can be carried out without difficulty. I am not opposed to antitoxin treatment, but think that it is well to apply the sulphur while waiting for the bacteriologic report.

Dr. William Cuthbertson, Chicago: The remarks of Dr. Keyes about the size of the dose of antitoxin are quite correct. We should have better results if we started with larger doses. In regard to the efficacy of sulphur mentioned by Dr. Gallant, I should feel much safer from the use of the antitoxin, although there is no harm in making topical applications of sulphur. It is well to start the antitoxin first and wait for the report of the culture afterward. We should make much more careful distinctions in the diagnosis of these cases than we have in the past, and by remembering that we would have much better results in puerperal infection. I have just had a case at St. Luke's Hospital in which there was a mixed infection, that of the streptococcus and the staphylococcus, and I summoned up nerve enough after receiving the bacteriologic report to treat the patient exclusively by means of the polyvalent serum of Marmorek. The patient entirely recovered through the use of the serum. If we will differentiate and use the serum that the bacteriologic report indicates, our mortality among puerperal women will be less in the future than it has been in the past.

GENITAL TUBERCULOSIS.*

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I wish to thank you for the invitation to address this section and assure you that I appreciate the honor.

Permit me to draw your attention to a group of diseases, which, I believe, has not received the attention it deserves, viz., tuberculosis of the genital organs. In fact, only twenty years ago the well known pioneer of gynecology, Hegar, of Freiburg, published his monograph on this particular form of genital disorders. At the meeting of the International Congress of Obstetricians and Gynecologists at Rome in 1902 it was proposed for discussion. Reviewing the literature we must confess however, that an astonishingly small number of observers have paid thorough attention to tuberculosis of the genital organs, including the peritoneum. This is all the more astonishing, as we know more about the tubercle bacillus than any other. From clinical observations we are not allowed to decide the possibility of its immigration by means of sexual intercourse. On the basis of experimental research by inoculation von Baum-

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garten denied an ascending infection, but Philip Jung has proved it beyond a doubt, at least in animals, by experiments in the laboratory of the gynecologic clinic at Greifswald. I agree that these cases make among women a very small minority of the cases of primary tuberculosis, though it seems to be important enough not to be forgotten.

In the large majority of cases the infection arises from other tuberculous deposits in the body—a secondary form—more frequently it seems to come from the alimentary tract rather than from the respiratory. In most instances, the bacillus may be brought down in the lymphatics or blood vessels, but we know that immigration does occur also by means of immediate contact. In more than two-thirds of our cases it came from the ovarian follicles to the Fallopian tubes; to the uterus in only one-third. It was also found in the corpus uteri. Localization in the cervix is very rare, still more than in the vagina.

Peritoneal infection was observed in the majority of cases. We could not ascertain this fact exactly, as we did not examine the peritoneum completely, the cases being clinical, not those of postmortem examination. The infection may occur at any age, but particularly during the menstruation and gestation periods.

Hegar, Freund and von Rosthorn called attention to the frequency of infantilism in these cases of genital tuberculosis. It is true that we meet infantilism, but I do not dare say what may be the connection.

An effort has been made to determine the frequency of genital tuberculosis by means of postmortem examination. Posner fixed it at 30 per cent.; von Hanseman at 5.4 per cent., figures undoubtedly incorrect, as postmortem examination only rarely extends to every gland, not every corpse being examined in all parts microscopically.

Fixing the frequency by the examination of the specimens removed by operations is unsatisfactory. If we do not examine every specimen, even when very slightly suspicious, we are likely to err. Another question under discussion is whether we are to diagnose tuberculosis when we see giant cells and epithelial tubercles, or must we see the bacillus? Many very good pathologists say the former. I believe that we must insist on the latter, as tubercles and giant cells are recognized also in other cases of irritation. Prof. Jung found that 24.6 per cent of the seriously affected adnexa of my Greifswald material were tuberculous (the bacillus being present) and this little city lies in the midst of a country which has been hitherto rather famous for its general healthfulness. If we should add to these cases those instances in which we met also with tubercles, the proportion would increase to a considerable amount. I am thoroughly convinced that when you examine your preparations with equal energy you all will feel astonished as to the frequency of tuberculosis of the genital organs.

We must acknowledge that tuberculosis of the genital organs is to be met with in about a quarter of those cases which require surgical interference when we base such interference on strict diagnosis and indication. In this connection we should be very precocious, indeed, to admit statistical numbers. Examining our cases with the same care, future meetings can only show us with some certainty the percentage of this form of tuberculous disease.

The clinical diagnosis in most instances is made with difficulty. In fact, the insignificancy of the symptoms is characteristic. Menstruation, in our material, was disturbed in only 55 per cent.; more or less aching feeling was complained of; many patients denied all such. Some complained of a reddish colored offensive discharge. They feel uncomfortable, weak, unable to work, lose flesh and show an unsatisfactory complexion. The sexual appetite not rarely seems to be increased. Not very rarely this disease arises from a well noted incident, puerperium, abortion, gonorrheal infection, local treatment. A severe cold we find related particularly in virgins and sterile women. In fact, seriously developed genital tuberculosis seems to exclude impregnation. There is no doubt that we find not very rarely tuberculosis of the placenta, particularly in case of general tuberculosis, which spreads to the ovum by the way of the blood. Sixty-six per cent. of our patients had never been pregnant. Thirty per cent. of the pregnancies occurred before tuberculosis manifested itself. One person in nineteen gave reasons to infer that she fell ill three weeks after confinement. Von Franqué believes that in one of his cases symptoms set in the second day after abortion.

Tuberculosis of other organs, heredity and contact with tuberculous people is very important for the diagnosis. The general condition of health, the slow development of the disease, the inefficiency of any treatment as to convalescence must be particularly looked at.

The diagnosis remains a very difficult task as long as we do not test for the bacillus either by means of biologic investigation or by microscopic examination of removed preparations. As to the former, Koch's test by tuberculin injection has been frequently applied. Many disapprove of it. According to my observation, I never met with any untoward effect, but I agree that only a marked positive reaction gives clear evidence. Tuberculin injections are not to be given in fever, and this is a somewhat disappointing complication.

The subconjunctival instillation of Pirquet-Calmette seems to give another means of specific examination. A more extended experience is to be waited for. Dr. E. Martin showed the peculiar value of this subconjunctival instillation in cases of pregnancy in tuberculous women. It is only too well known with what difficulties we meet in those cases when endeavoring to decide whether pregnancy is to be interfered with or not. A positive subconjunctival instillation proves, as E. Martin showed in more than two dozen cases, that such patients show a sufficient power for producing antibodies so that we may allow pregnancy to continue. A negative reaction proves the deep injury the disease has produced on the self-defending power of the pregnant patient, and interruption of the pregnancy is indicated at once. E. Martin's researches have been made in Prof. Bumm's clinic in Berlin, and it is hoped that they will be confirmed elsewhere. Hyperleucocytosis is of no special value in the diagnosis of tuberculosis.

Ulcers of the external parts up to the vaginal portion are suspected to be of tuberculous origin when their sloughing surfaces are indurated, where undermined borders resist local treatment and when they are tested not to be syphilitic. In such instances the microscopic examination of excised parts frequently requires much work. Only after examining about 100 slides do we sometimes find the bacillus. In some instances the ulcers of the vaginal portion show a very remarkable tendency to hypertrophy so as to form cauliflower outgrowths. These also can be determined only by careful

microscopic examination. Enlarged glands with slight sensitiveness demand attention.

The peritoneum shows two remarkable kinds of reaction, exudative and sloughing, giving rise to the development of hard masses of considerable size. Both are the production of the same infection. We are still ignorant as to why the reaction sometimes takes one form and sometimes the other. This tuberculous peritonitis, particularly that of the exudative form, is met with with astonishing frequency in young girls who rarely show in the very beginning any localization in any other organ. We noted a peculiar variation in the frequency of its combination with genital tuberculosis. The sloughing form we met with in one-third of our cases and one-fifth of these were complicated by local infection of the adnexa. Two-thirds proved to be of the exudative form and one-half of these showed local infection of the genital organs.

The clinical diagnosis of peritoneal tuberculosis can be made with relative certainty in many instances. Ascites is always a suspicious symptom in the absence of neoplasms and diseases of heart, liver and kidney, particularly in young women. In advanced age carcinoma of the peritoneum also occurs. The clear straw color of such a fluid removed for diagnostic purposes indicates tuberculosis, while a bloody fluid indicates carcinoma. Hegar and Sellheim called attention to the pinhead-like prominences felt from the rectum or the vagina on the peritoneal layer as a sign of peritoneal tuberculosis. I have met with a rather remarkable number of exceptions to this.

The dry or sloughing form of peritonitis gives rise to the formation of hard masses which simulate neoplasms or inflammatory infection. The anamnesis must help as well as the localization of the tuberculosis in other organs. Especial attention is to be paid to careful examination of the genital organs by touch so as to determine their proper condition. In most instances, the tuberculous masses show an abnormal location not connected with any organ of the peritoneal cavity. The observation of the general condition and the application of our diagnostic resources leave us to recognize the true nature of these masses.

The prognosis in all these cases is very grave. Healing depends on so many conditions, particularly on the possibility of constant care. We dare not forget that only too frequently besides these localizations which for the moment attract our attention, a latent localization may exist in other parts which escapes recognition. As to the prognosis of the especially diseased parts of the genital organs, our means of attack are not yet powerful enough to allow us to give the prognosis as absolutely favorable. In any case we are not ensured against the outcropping of tuberculosis in any other part, in the organs of respiration and digestion, bones, joints, skin and elsewhere.

As to the treatment: This is both general and local. I will speak only of the latter. Tuberculous ulcers of the vulva and vagina and of the endometrium can easily be removed. As to the latter, I prefer the application of strong astringents after curetting.

Particular attention is to be paid to those cases where we meet with a complicating gonorrhea and septic infection. These cases require special care; I think it is much better not to operate at once, but to interfere only when urgent indication sets in. The tuberculous diseases of the tubes and ovaries can be diagnosed definitely only after operation. Frequently, the special organs participating in the formation of these masses can be separated only by dissection. These organs, when they are destroyed by the tuberculous process, should be removed. Many surgeons advise removal of all the genital organs in these instances. I prefer to take away only what is so thoroughly diseased that healing seems to be excluded.

We are not allowed to speak of a radical treatment, as we do not know in every case whether there is tuberculosis in any remote organ, even in a latent form. That parts of the genital organs left in position after the removal of others can come to normal function is not to be doubted, as long as the blood vessels can be conserved and defects of the peritoneum covered by the neighboring parts. I apply drainage only in recent cases, that is to say, in the cases of a mixed infection of tuberculosis and sepsis or sapremia.

If possible, I perform the operation by the vaginal route. Ascites I remove, as a rule, by free abdominal incision, through which I can reach its localization—occasionally only by the vaginal. The removal of big nodules and big sloughing masses seems to be useless, particularly when they are connected with the intestines. Experience taught me this precaution, as we are not sure in such instances whether we have to deal with an old intestinal fistula.

The results of this treatment I have been able to control in 53 patients, who suffered to some extent from disease of other organs. Three of these died after laparotomy, two from the development of colon bacteria infection from old intestinal fistula; the third patient at the postmortem examination proved to have a large tumor of the right kidney. Five others died from the pulmonary disease, the surgical intervention on the genital organs neither aggravating nor relieving the process. In 85 per cent. primary convalescence went on satisfactorily. Two of these cases showed recurrence of their ascites when they were dismissed after some weeks' treatment in the hospital.

Especial attention was paid to the after-treatment. The family, the physicians, and for our poor patients some charity institution, were warmly interested in the case and all instructed in the methods of modern phthisico-therapeutics. In some instances we met with remarkable benefits from guaiacol and creosote preparations.

As to the definite result, Dr. B. Martin has examined for me 53 per cent. of these cases. Out of 27 patients observed, all after more than a year, 16 proved to be perfectly well. Two have not improved. Two died later of progressive tuberculosis, one from other causes, and six have been considerably improved. One of these, whom I could examine repeatedly, has gained 15 pounds and is very comfortable; at the last examination beginning endometritis was noted, but as there was only slight backache and a very moderate discharge she declined any treatment.

In comparing these results please remember that in every instance the tubercle bacillus was present. If I should add those cases in which the anamnesis and the local condition pointed to a genital tuberculosis, but in which this could not be proved positively the results would be much more favorable. This I observe particularly in my private patients, many of whom I have been able to control for long years.

Conservative operations were done whenever indicated.

Both the primary and secondary results were satisfactory and generally the menstrual function was conserved. Occasional amenorrhea and dysmenorrhea were easily supported because of the general improvement. Especially after the vaginal operation patients were free from pain and were able to do a certain amount of work and to enjoy life. They rapidly gained flesh. In those cases of complication of pregnancy and tuberculosis I interfered when the general condition sank in a notable degree. For the future I shall follow E. Martin's advice and depend on the result of the subconjunctival inoculation of Koch's tuberculin.

The operation did not prove unfavorable in any of these cases. The narcosis can be performed in a most convenient manner by lumbar anesthesia. Particular attention is to be paid to the loss of blood, to the disturbance of proper nutrition and to the necessity of keeping the patient in a quiet position in bed. In view of this, every operation was done only under a special and urgent indication when every other treatment failed to heal the disorders. Interference was done at once when fever was diagnosed in connection with septic or sapremic infection, including helpless cases in which, nevertheless, some relief was given by the operation. Genital tuberculosis formed nearly a quarter of the more serious cases of inflammatory disease.

Surgery was applied only to the diseased parts and the others were conserved. The result proves that such treatment benefits our patients, when supported by a proper general treatment.

Let me hope that the general interest in these cases will increase, and that future meetings will prove that my ideas are agreed to by the majority of my collaborators.

DISCUSSION.

DR. H. J. BOLDT, New York: Most cases of genital tuberculosis and tuberculosis of the peritoneum are of the ascending form, and in many of these instances the endometrium is diseased primarily. That can be ascertained, for in some cases where we remove tuberculous organs and curette the endometrium we find on careful examination a number of cells showing tubercle bacilli. With regard to the Fallopian tubes and ovaries, in about two-thirds of the cases, unless the disease has advanced too far, involving the pulmonary organs, we have a permanent cure by removal of the diseased adnexa. That so far has been my experience.

DR. E. E. MONTGOMERY, Philadelphia: The early stage of tuberculous disease of the peritoneum seems to be most amenable to treatment. The opening of the abdomen, even without the removal of any organs, often brings about conditions enabling the physician to restore the patient to health. I have seen this again and again in peritoneal tuberculosis. The great advantage is that we are made acquainted with the actual conditions and thus enabled to treat the patients from a hygienic standpoint.

DR. HENRY T. BYFORD, Chicago: We should not treat tuberculosis as a local disease. Surgery is not the whole treatment for it. When we have local disease of the lungs it is seldom surgery that does any good, and yet we know that the majority of cases of lung disease can be cured. In tuberculosis of the peritoneum all we need to do sometimes is to let out the fluid and treat the case medically. I have cured many cases without drawing off the fluid. I remember one case which for a couple of years apparently presented a brilliant cure, but some time afterward the patient went to pieces with tuberculosis. Had more attention been paid in this case to the after-treatment I have no doubt recovery would have been permanent. I believe that this part of the treatment rather than surgery should be emphasized.

DR. D. TOD GILLIAM, Columbus: Despite the growing tendency to minimize operative interference, excellent results are still to be had from operation in properly selected cases. From my own experience and observation I am convinced that the great majority of cases of tuberculosis of the genital tract are from above, and that a number of them, as Professor Martin intimated, come from some lesion of the alimentary canal. Fine particles of colored matter, such as cinnabar, let loose in the peritoneal cavity, are swept into the Fallopian tubes, and I have no doubt that an endometrial infection may result in this way. I believe that the ascending form is largely limited to the cervix, as there is usually a sharp line of demarcation between cervical and corporeal tuberculosis. Regarding the treatment of these cases I was a little surprised to hear Dr. Byford, for whom I have the most profound regard, say that genital tuberculosis is a general disease. I am willing to admit that in many cases the infection is much wider spread than the surface markings would indicate, and that in a proportion of such surgery is of no benefit, but, on the other hand, an attack on the center of infection will often result in prompt and permanent relief. How often will a widespread genital tuberculosis be arrested by the removal of the uterine appendages, and the removal of the cervix beyond the grossly diseased area arrest a cervical tuberculosis? I am persuaded from past experience that not a few of the supposed advanced cases of cancer of the cervix in which recurrence did not follow operation were in reality cases of cervical tuberculosis. The diagnosis of cancer, of course, could only come from slipshod methods, but slipshod methods are by no means exceptional, especially in the smaller general hospitals. In the widespread tuberculous infections of the peritoneum, in the absence of adhesions and especially if associated with peritoneal effusion, the brilliant results following section are so sudden and so conspicuous as to leave no doubt as to the efficiency of the operation. While I have long been of the opinion that too much was expected of operative interference in this class of cases in the past, I am equally convinced that the present-day tendency to taboo operations is ill judged and prejudicial. Professor Martin has shown us that genital tuberculosis is much more common than we had reason to believe.

DR. G. BETTON MASSEY, Philadelphia: We surely have a local disease to deal with in tuberculosis, with a reduced resistance of the general system. I suggest the inadvisability of curettage in the local deposits of this disease. It may be taken as a rule that curetting should not be practiced in any microbic disease if that disease be of a kind that can be sown into the cut surfaces.

PROF. AUGUST MARTIN, Berlin: This discussion is undoubtedly very difficult, for we do not all stand on the same basis. In all these cases the bacillus has been proved. That which entitled me to draw these conclusions was the clear clinical indications. Indeed, the diagnosis is a very difficult question, and only by the most careful examination at the time of operation can we find the same basis to stand on. If I should be permitted to meet you in a meeting, say ten years hence, I think we should all look on these cases from the same point of view. One of the gentlemen spoke of not applying the curette. I do not make a curettement without special indication. The treatment must be to a great extent a general one, and when Dr. Byford prefers medical treatment I absolutely agree with him. Whenever I can I send these patients to a milder climate. There is in Germany some difficulty in securing such care for poor people. While fighting for the admission of poor patients with tuberculosis of the genital organs to the hospitals treating patients with tuberculosis of the lungs I first began to publish my observations. If by proper general treatment these patients did not recover, surgical intervention was advised. From the fact that more than 24 per cent. of seriously injured genital organs partly or totally removed were found to be tuberculous it must be considered that my standpoint for surgical interference is a conservative one. The surgical interference I have pointed out is especially opposed to the radical treatment recommended by our French confrères at the congress in Rome. One may take out these parts altogether, but if one does not know whether there are any other glands in the body that are affected by and by one may have develop-

ment of the condition in some other part. So I think we should not speak about radical operation if we can only say that we took out all of that organ that was diseased. I think that by examining with the utmost care not only the mucous membranes, but every part not apparently suspicious, we shall find that tuberculosis is a frequent disease of the genital organs. Perhaps we can then agree on an improved way to fight this fearful and dangerous disease.

THE CONSERVATIVE SURGEON AND THE SYMPTOMLESS UTERINE FIBROID.*

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From time to time various operators have shown that in a considerable percentage of cases of fibromyoma of the uterus there have been found complications which, in their opinion, would in time bring about a fatal termination. The existence of such complications has been brought forth as constituting an argument in favor of the removal on diagnosis of all fibromyomata regardless of whether the symptoms at the time of diagnosis were threatening or not.

It is, of course, a question as to whether a complication such as a cystic tumor of the ovary, for instance, coexistent with a fibromyoma, constitutes a reason for the removal of the latter, any more than a fibromyoma constitutes a reason for the removal of a cystic tumor of the ovary. Does or does not the fibromyoma itself present probabilities, present and future, of such gravity as to warrant operation?

This paper is written for the purpose of emphasizing the fact that frequently there are found fibromyomata wherein there are conditions threatening the life of the patient, the existence of which conditions can not be determined and may not be suspected prior to operation, and in some instances not until microscopic examination has been made.

The various degenerations existing either at the time of examination or likely to exist later constitute a danger which should be forestalled. A certain element of the profession has been disposed to the belief that degenerations are not so common as others would have them to believe. However, only within the last few years has this subject been studied, and in view of the results of the investigators one must conclude that up to recent years degenerations were not found because they were not sought for.

Tracy[1] discusses this subject, taking as the basis of his article 3,561 cases reported by various operators. There was necrosis of the tumor in 197 cases, or 4.9 per cent.; myxomatous degeneration in 160, or 4 per cent.; hyaline degeneration in 72, or 1.8 per cent.; hyaline degeneration and calcareous infiltration in 12 or 0.3 per cent.; cystic degeneration in 141, or 3.5 per cent.; calcareous infiltration in 12, or 3.4 per cent.; carcinoma of the body of the uterus in 63, or 1.7 per cent.; sarcoma in 54, or 1.5 per cent., and various other degenerations, among which is carcinoma of the cervix, in 25 cases, or 0.7 per cent., and intraligamentous development of tumor, which latter conditions are not pertinent to the subject, carcinoma of the cervix and fibromyoma being rarely, if ever, more than coincident, and intraligamentous development of tumor not being a degeneration.

That there is an etiologic relation between fibroma and cancer of the uterus is generally conceded. Strictly speaking, a fibroma does not undergo degeneration into carcinoma, but, as has been shown by numerous investigators, results from prolonged irritation of the epithelium elements of the remains of the Wolffian body.

Piquand,[2] tabulating the statistics of some seventeen authors, says that out of 3,231 cases of fibroma 96 were attended by cancer (48 each of body and of neck), or thirty out of one thousand, or 3 per cent. On the other hand, he finds from the study of 136 cases that 25 per cent. of cases of cancer of the uterus are accompanied by fibroma. He says: "Cancer of the body appears to be, then, eight or nine times more frequent when there is a fibromatosis than when there is not; and it seems to us that we must justly conclude that fibromata predispose to cancer of the body of the uterus. Again, from the different statistics, we find an average of seventeen cancers of the body to one hundred uterine neoplasms. Then, in a general way, cancer of the neck is at least five times more frequent than that of the body, while, when there is present a fibroma, the number of cases of cancer of the neck and cancer of the body are about the same. Therefore, one may conclude that fibroma actually predisposes to cancer of the body."

In explaining how a fibroma favors the occurrence of a body cancer, he says: (1) Mechanical disturbances set up by the fibroma, degeneration of mucosa, displacements, etc. (2) Circulatory disturbances. Changes analogous to those of gestation are present, and the uterus is the seat of constant and prolonged irritation, and, therefore, a high degree of congestion and, therefore, a glandular endometritis is produced. (3) The chronic glandular endometritis by progressive transitions, due to continued irritation of the tumor, forms an atypical adenoma, and then carcinoma, by regular and then irregular proliferation.

"Cancer of the uterine body," he continues, "is much more frequent in cases where there is a fibroid than in others; therefore, the fibroid predisposes to cancer of the body. Fibroma favors the occurrence of cancer in determining the lesions of hypertrophic metritis which are susceptible of being transformed into an epithelioma."

J. Bland-Sutton[3] finds that in a consecutive series of 500 cases of fibroids operated on, 63 of the patients were between 50 and 73 years old. Among these 63 women there were eight cases of cancer of the corporeal endometrium. He cites these cases to show that the combination of fibroids and cancer is most likely to occur between the ages of 50 and 60, as in his series only one cancer patient was over 60. When cancer of the body of the uterus occurs unassociated with fibroid, it has a wider age range.

One rarely reads an article on sarcoma of the uterus in which the rarity of this disease is not emphasized. This rarity is apparent, not real. In the last few years, since this subject is undergoing investigation, the proportion of sarcomatous degeneration is increasing because they are being found out. For instance, Dr. Howard C. Taylor[4] reports six cases of sarcoma of the uterus. Particularly interesting is Case IV of this series, as it illustrates the impracticability of differential diagnosis, as well as the treacherous character of these

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Surg. Gyn. and Obst., March, 1908, 246.
2. Id., November, 1905, 465.
3. Id., July, 1905, 88.
4. Am. Jour. Obst., September, 1907, 373.

growths. In the case mentioned a tumor which at the time of admission reached to the margin of the ribs was first noticed on the left side, but later became median. The patient had lost considerable flesh and had constant abdominal pain. On Aug. 18, 1905, Dr. Taylor opened the abdomen and removed a tumor weighing about fourteen pounds, which was attached to the fundus of the uterus by a pedicle about one inch in diameter. The uterus was not removed, as the tumor was considered to be a fibroma.

The pathologic report was small spindle-cell sarcoma. Seventeen days later, when the patient seemed in condition for a second operation, the uterus and one appendage were removed through the vagina. The vaginal route was selected, as the patient was not in good condition. The pathologic report on the uterus showed it to contain numerous sarcomatous foci.

There is little force in the argument that the so-called sarcomatous degenerations are really not degenerations and were sarcomatous in the beginning. This proves nothing against removal of the uterus. Certainly no one would attempt to make a differential diagnosis before removal, and so far as the writer's observation is concerned, the development of sarcoma or of sarcomatous degeneration is quite as insidious and ofttimes as symptomless as the fibromyoma.

The most interesting and important degeneration noted in the statistics tabulated by Tracy[1] was necrosis, of which there were 197 cases, or nearly 5 per cent. Necrosis constitutes the most dangerous degeneration with which we have to deal. None can say that necrosis may not exist throughout a long period of time and produce no threatening symptoms, although it is the observation of all of those who do practical work along this line that this process is very treacherous and that patients apparently in the best of health are suddenly stricken down by a sudden exacerbation in the necrotic process. Then it is that we must operate ofttimes on a patient *in extremis*, whose every tissue is so invaded by the poison that removal of a tumor only serves to eliminate the original focus of infection and leaves the system so overwhelmed that the results are fearful.

Including carcinomatous, sarcomatous, necrotic and myxomatous degeneration, we have 12.1 per cent. of degenerations of which it may be said that (1) they are conditions which, if not removed, will at least in all probability terminate fatally; (2) if not removed, such developments will occur as will render subsequent surgical procedure much more difficult and less productive of satisfactory results, and (3) these conditions are such that in the majority of cases could exist unknown and even unsuspected by the examiner.

What, then, is to be done about it? To me it has been a thing unfathomable why it is that those who are pleased to call themselves conservatists demand a special dispensation for fibromyomata. Many a small cystic tumor of the ovary exists without symptoms and is only discovered by accident. In all other parts of the body we remove new growths which are benign; remove many of them which at the present time threaten nothing, not even inconvenience, simply because they may undergo malignant degeneration. Do the conservatists remove such growths? So far as I am able to learn, they do. Not because its condition is at present alarming, but because of what it may become. Many a case of chronic appendicitis goes on to apparent recovery. Do the conservatists advise that this appendix be let alone? Not at all; they advise its removal because the patient may have a recurrent attack.

If the conservative surgeon in palpating an abdomen without suspicion of the existence of gallstones should find such stones, would he advise against their removal? Not at all. He would advise their removal, because he knows that gallstones may later become a source of trouble and predispose to cancer of the gall bladder. Take a lipoma, for instance. Certainly there is no more innocent form of tumor, and how many of these escape the surgeon's knife, once he has seen them? Only those occurring in patients who positively refuse operation. And yet statistics show that over 12 per cent. of fibromyomata show conditions which, if allowed to persist would bring about results far more to be dreaded than those coming from a cystic ovary, a chronically inflamed appendix, gallstones or a lipoma.

There are those who make a plea for the conservation of these fibromyomata, particularly those occurring in young women who are anxious to bear children. Certainly the prospect for children in the case of a young woman with a fibromyoma is not a very bright one. Under such conditions ten women will abort or miscarry where one will carry a child to full term, and even where the pregnancy goes to full term the dangers are such as to make very few of us willing to risk such a state of affairs, particularly when it comes close home to us, and it certainly becomes a matter of ethics as to which horn of the dilemma we are to take.

Naturally it devolves on such men as sit in this section to brush away the fallacious ideas which exist among a certain element of the profession and the laity. The idea which has cost as many lives as any other is the one that the menopause offers a certain and safe cure to all the diseases to which woman is heir. We hear that at the menopause these fibromyomata shrink up and cease to cause any trouble. Certainly the percentage must be very small, and to offset this percentage we know that 64.9 per cent. of degenerations occur after the age of forty years.

It is hard to realize in this day of advanced and intelligent surgery that men of unquestioned standing will delay these operations, trusting to good luck or the menopause to do away with the symptoms of which these women complain. According to my observation, so far as the menopause is concerned, it aggravates rather than improves the symptoms in at least half the cases. The idea of the menopause curing such a thing as fibromyoma is a relic of the surgical dark ages, and admitting the bare possibility of such a thing occurring, the chance is so small that it should not be taken by the intelligent, modern operator.

In this connection, J. Bland-Sutton[5] has been frequently quoted, and what he says ought to be read and studied by every woman who hangs to this will-o'-the-wisp in the hope of relief from a fibromyoma. He says: "Surely there is nothing in the whole range of surgery more ironical than a woman spending twenty or even thirty years of her life as a chronic invalid on account of a uterine fibroid, in the expectation that at the menopause she will be restored to health and begin a new life, and then to realize that far from this being fulfilled, the fibroid becomes necrotic, extruded or septic, and places her life in the gravest peril, and that she may die in spite of surgical intervention."

The teaching that it is well to advise patients having fibromyomata giving rise to no symptoms to return from

5. Lancet-Clinic, June 6, 1903.

time to time, is weak in theory and bad in practice. This advice is just what the woman who shuns an operation wants. Where one will return, ten will never be seen again until some radical pathologic process has developed which will greatly diminish the patient's chance for recovery from an operation delayed without reason. I was myself in the habit of advising the patient with the so-called innocent fibromyoma to return from time to time. The death of two such patients from an overwhelming necrosis convinced me of the mistake.

With the mortality of ten years ago, the advocacy of the removal of all fibromyomata on diagnosis might have been questionable, but with a mortality of 6 per cent., or even less, in operations performed by competent men, a certain portion of which, it is reasonable to presume, occurred in cases where an earlier operation would have given different results, and with 12 to 14 per cent. of cases showing degenerations, threatening death if neglected, it seems that the radical view taken in this paper is the one which, if maintained, will be the means of relieving many a woman from a life of invalidism or from death.

DISCUSSION.

DR. H. J. BOLDT, New York: It is doubtful to my mind whether these sarcomas of the uterus are degenerated fibromas or have been sarcomas from the beginning. There is no proof at all to convince me that the tumors have not been of a malignant type from the beginning. In operating on cystic ovaries, conservative surgeons retain as much ovarian tissue as apparently is normal. I believe that every woman who has a myofibroma causing symptoms should be advised to have the tumor removed.

But I am absolutely opposed to removing a woman's uterus when there is nothing to indicate whether it is the seat of myoma or not. There are women who will absolutely decline to have an operation. I have watched some of these women for fifteen or twenty years and have a number under observation now. Such tumors sometimes retrograde and become smaller long years after they had first been diagnosed. I know from personal observation that they atrophy and shrink. I would not say, however, that it was a proper thing to have the patients advised against surgical intervention.

DR. HUGO O. PANTZER, Indianapolis: I do not wish to detract from the force of the argument made for the removal of uterine myomata, but some of the adverse evidence should be presented. The fatality and morbidity which follows such work by expert operators in well-appointed clinics, should be additionally stated, if not the untoward results following the work of less experienced surgeons. The incidents by infection, by anesthetics, by idiosyncrasy, by unexpected complications and sequelæ certainly justify and demand a discriminating and differential course in these cases.

DR. F. F. LAWRENCE, Columbus: It is strange that there should seem to be any necessity for discussing the advisability of removing any neoplasm from the body, except possibly in cases in which operation is absolutely impossible. The dangers of operation before complications occur are almost *nil* in hysterectomy. Noble and others have shown that the danger of malignant degeneration in fibroids is much beyond 5 per cent. The question is not simply one of malignancy. What are the dangers of suppuration of fibroids left alone? Another 5 or more than 5 per cent. Particularly is that true when these fibroids are made the subject of local treatment.

What about the resistance of the patient when she is allowed to go on with a fibroid. A patient carrying a fibroid for six or eight years is reduced in every way.

What can be gained by the expectant treatment? Some years ago we were told that we must not remove an ovarian cyst until it became as big as a wash-tub. Some years ago we were taught that a fibroid should not be removed until after the menopause and patients had to go on to a necrotic condition of the growths with a mortality at the time of operation of 35 per cent. To-day the mortality in operation is less than 3 per cent. This difference is due to teaching such as Dr. Eastman's advocating the removal of every neoplasm, no matter where situated, as soon as it is discovered.

DR. J. H. CARSTENS, Detroit: There is something to be said about symptomless fibroids. How do you ever find the fibroids? The patient has some symptom before she consults a physician. There is no doubt that many women are going about with symptomless fibroids. When they finally come to the physician there are symptoms and the tumor should be removed.

There are some fibroids, however, that do not produce symptoms and the question is simply, what will you do? What do you call symptoms? Are there not other symptoms than pain? Does not the patient suffer in the consciousness that she has a fibroid that will cause her trouble? Is she symptomless when she goes around for a year or more dreading lest something will happen? Is it not a good thing to remove that fibroid when the danger is *nil*, not 6 per cent., when you often can do it by the vaginal method, or by simply enucleating the fibroid and leaving the uterus intact and the woman in good health?

I think that we ought to relieve a woman and remove the fibroid whether or not it is degenerated. There is mortality in the very cases that are called symptomless but are allowed to drag along year after year until they are almost *in articulo mortis;* and then the patients present themselves for operation and the mortality statistics are not good. Is it not better on general principles to remove the fibroid and relieve the woman, not necessarily to-day or to-morrow, but as soon as possible, in two or three months, when the woman is in the best condition?

DR. T. B. EASTMAN, Indianapolis: The *reductio ad absurdum* agument has been applied to this question. Some one asks why we do not remove the uterus for fear of carcinoma. I answer for the simple reason that the conditions are not pathologic. We advocate the removal of fibroid tumors because they are pathologic and that is sufficient reason. Now, there is one thing which those who are pleased to call themselves conservatives never have explained in any discussion on this subject, and that is why in the world they demand a special dispensation for fibromyomata. They take out a cystic ovary or the appendix on the slightest suspicion. If they can show any reason why they should have this special dispensation I have nothing to say.

METABOLISM IN TYPHOID FEVER.*

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I shall not attempt to review the many-sided subject of metabolism in typhoid fever, but shall devote the time to a brief discussion of one phase of the subject, which is of great importance, as well as of interest, both to the clinician and to the pathologic physiologist.

During the course of the disease a typhoid patient loses from ten to sixty pounds, or even more, of his body tissue. This loss is divided among water, subcutaneous fat and protein from the body fluids or cells. The loss of water we may leave out of consideration because we know neither its amount or significance. Since the observation of Leyden[1] in 1869 it has been believed that there is a retention rather than a loss of water from the body in fever. This belief is supported by the

* Read in the Joint Meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

1. Arch. f. klin. Med., 1869, v, 366.

decreased quantity of urine and by the supposed decrease in the evaporation from the skin; but few or no accurate data on this question are available, and no positive statements concerning it can be made.

The burning of body fat may, in the absence of carbohydrates, and perhaps also other conditions, lead to varying degrees of acidosis, with an abstraction of alkalis from the tissues, and possibly in other ways may be of distinct harm to the patient. This is borne out by the clinical observation that fat individuals are comparatively poor subjects for typhoid fever, or for that matter, for any infectious fever or for surgical operations. We have, however, as yet no good reason for believing that the metabolism of fat in fever is in any way different qualitatively from that in other conditions of undernutrition; and it seems to me probable that the excretion of the acetone bodies occasionally recorded in typhoid fever is merely the result of a burning of body fat in the absence of sufficient carbohydrates—the frequently observed starvation acidosis. If this is true, acetone, diacetic and beta-oxybutyric acids will not be excreted by the typhoid patient who receives an abundance of carbohydrates. Aside from the production of organic acids in the burning of body fats, the mere loss of fat is probably of no great consequence.

In addition to the loss of body fat there is a great loss of body protein in typhoid fever, and this is what I shall speak of in some detail. Many data are to be found in the literature as examples of the amount of this loss of protein. In a case reported by Leyden and Klemperer[2] there was a loss of 109 gm. of nitrogen, the equivalent of 3.2 kilos or seven pounds of pure muscle tissue in twelve days. In a case of Frederick Müller[3] there was a loss of 86.4 gm. of nitrogen, the equivalent of 2.5 kilos or five and one-half pounds of muscle tissue in eight days. These are not very unusual figures: a loss of the equivalent of even one and one-half pounds of muscle tissue in a single day is not very rare. There are many reasons for believing that this febrile loss of protein from the body is a serious and dangerous proceeding. The emaciation, muscular weakness and decreased resistance, and the long convalescence are certainly in part the results of the loss of body protein. The amount of protein lost appears to bear a close relation to the severity of the disease, and Ewing believes that the pathologic processes concerned in the metabolism of this body protein take a prominent part in determining the patient's condition. Ewing's[4] idea is that many of the phenomena of typhoid fever, especially in the severe and fatal cases, are due to an autointoxication resulting from the "burning of thirty pounds of body tissue in three weeks"—and not directly to the endotoxins of typhoid bacilli. This idea is to some extent supported by the fact that the so-called nitrogen partition of the urine in severe or fatal cases is decidedly abnormal, and similar to those found by Wolf, Ewing and others in toxemia of pregnancy. Furthermore there are severe so-called toxic cases of typhoid fever which terminate with acute yellow atrophy of the liver, a condition which appears to be closely associated with a particular type of faulty protein metabolism. But aside from the possibility of its creating an autointoxication, the consumption and loss of body protein must be of great harm to the patient, both during the disease and during convalescence.

The causes for this loss of body protein are apparently three in number.

The first is partial starvation. An individual is obviously undernourished unless he absorbs from the digestive tract food of sufficient caloric value to equal the energy expended. Except by very difficult and accurate measurements it is impossible to know the amount of energy being expended by a particular patient, and few such measurements have been made on fever patients; but we may readily calculate average figures which are satisfactory for practical purposes.

At ordinary rest the heat and other energy expended by a normal individual receiving sufficient food is about thirty-three calories per kilo body weight. In fever there is an increased heat production, with an average, according to Krehl, of 20 to 30 per cent. Twenty-five per cent. added to the thirty-three calories gives about forty calories, or, for a patient weighing seventy kilograms, or 150 pounds, 2,800 calories. This represents the minimum amount of energy which the average typhoid patient is expending in each twenty-four hours. If he does not receive food equivalent to this amount of energy he merely draws on his body tissues to make up for the deficit. Few or no typhoid patients receive enough food to maintain an equilibrium, and they consequently burn up for fuel varying amounts of their body fat and protein.

Any physician can readily calculate the probable deficit with the diets he uses. The deficit in calories is usually about 50 per cent., and this, according to von Noorden's figures,[5] may be responsible for loss of 2 to 3 gm. of body nitrogen per day.

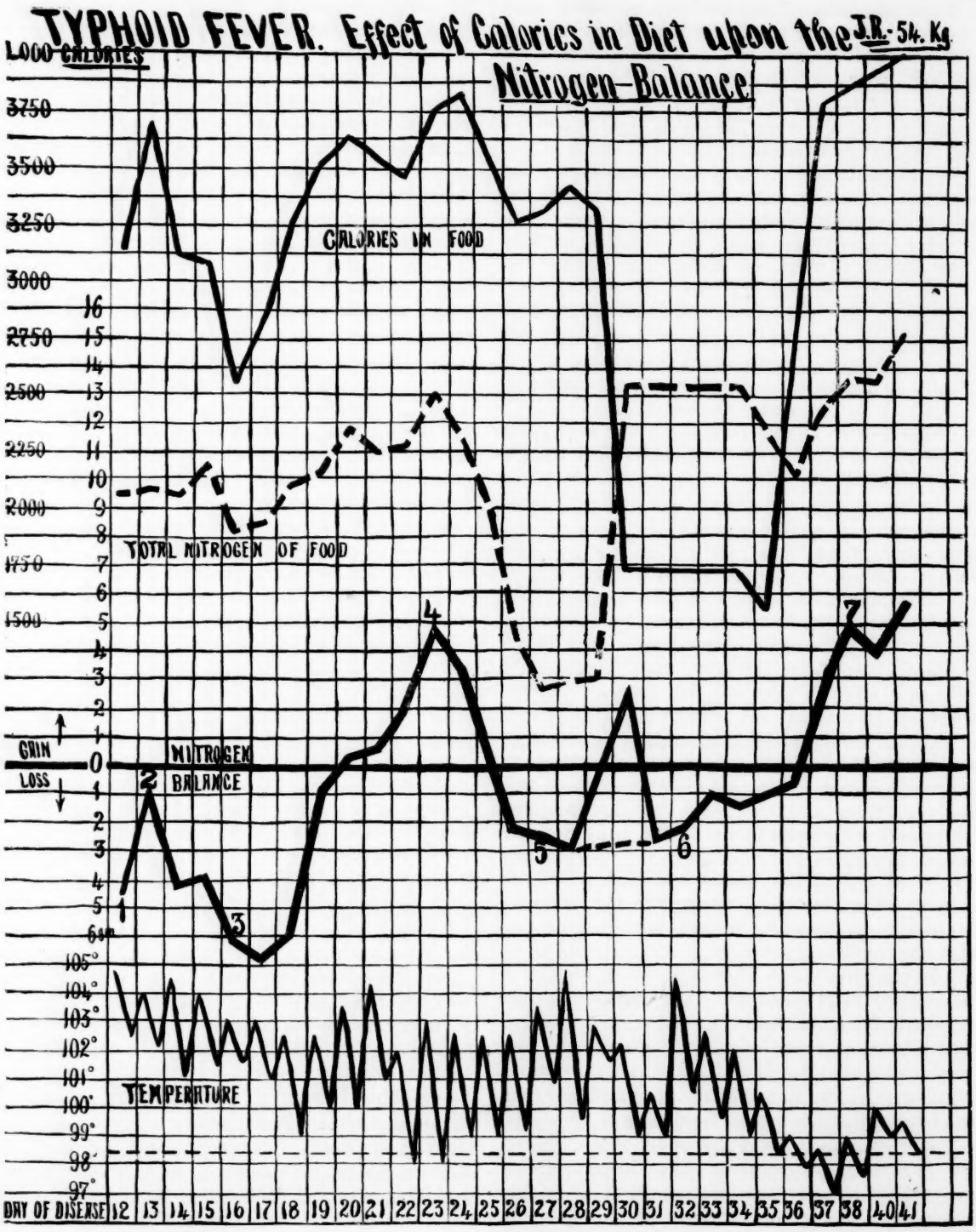
The two other causes for the febrile loss of body protein are the pyrexia and the action of the bacterial toxins. From the experiments of Linser and Schmidt,[6] Fritz Voit[7] and Schleich,[8] we know that artificially raising the body temperature causes an increase in protein metabolism. The pyrexia itself is therefore one of the causes for the loss of body protein; but the loss due to this cause can be prevented, just as the loss due to partial starvation, by the intake of sufficient food.

The third factor is the so-called "toxic" destruction of body protein from the poisonous action of the bacterial toxins on the body protein. This last factor is still open to discussion, but I am inclined to the belief that some such action does take part. It is, however, at present impossible to discuss the toxic destruction apart from the result of the pyrexia, because we can not distinguish between the two when both are present, as they usually are in typhoid. The question which is of importance for the practical treatment of typhoid is, can the combined effect of the pyrexia and the bacterial toxins be prevented from causing a loss of body-protein? There are already some encouraging answers to this question. May,[9] working with rabbits infected with pig erysipelas, was able to decrease the febrile loss of body protein by carbohydrates; though May later doubted the correctness of his first interpretation. Puritz[10] worked on human typhoid in St. Petersburg, and his results

2. Von Leyden: Handbuch der Ernährungstherapie, 1904, ii.
3. Cong. f. inn. Med., 1902, p. 192.
4. Proc. Path. Soc. Philadelphia, 1905; paper before New York Acad. Med., New York Med. Rec., 1907, p. 537.
5. Handbuch der Pathologie des Stoffwechsels, 1906, i, 497.
6. Arch. f. klin. Med., lxxix, 514.
7. Sitzungsb. d. Gesellsch. f. Morphol. u. Physiol. in München, 1895, No. 2.
8. Arch. f. exp. Pathol. u. Pharmakol., iv, 82.
9. Ztschr. f. Biol., 1894, xxx, 1.
10. Virchows Arch. f. Path. Anat., 1893, cxxxi, 327.

led him to favor a liberal diet in this disease. His diets, however, were rich in protein and of only moderate caloric value, and were therefore, I believe, not well adapted for his purpose, which was to retard the loss of protein. Weber,[11] working with a sheep inoculated with an extract of glanders bacilli, was able wholly to prevent any febrile loss of body protein by giving the animal a liberal diet containing much carbohydrate. Leyden and Klemperer, on the other hand, conclude from their experiments on typhoid and pneumonia that, while a liberal diet is desirable, it is not possible to prevent the febrile loss of protein; this view is generally accepted.

Last summer Dr. Warren Coleman and I undertook in Bellevue Hospital, New York, a further study of the extent to which the loss of body protein in typhoid fever might be retarded by dietetic means.[12] Our results were on the whole very encouraging, in that we were able to diminish the loss of body nitrogen to a comparatively small amount during the fastigial temperature and were able to make patients gain body protein during the steep curve period of the disease.



I need not here go fully into the reasons underlying

11. Arch. f. exper. Path., xlvii, 10.

12. We are indebted to Dr. Armstrong, medical superintendent of Bellevue Hospital, for placing the facilities of the hospital at our disposal. The experiments will be published elsewhere in detail.

our choice of diet, which is the opposite of that used by Puritz, and indeed the opposite, in some particulars, of the diets at present used in typhoid fever by most physicians. Our principle has been to have the diet contain a moderate amount of protein and the largest possible amount of carbohydrate. The reasons for choosing carbohydrates as the basis of the diets were briefly as follows: Carbohydrates are the strongest sparers of body protein in health, according to Voit, Lusk, Folin and others; and the experiments of May, Weber and Linser and Schmidt indicate that this sparing action takes place in fever as it does in health.

A large amount of fat is objectionable because of its tendency toward digestive disturbances and diarrhea; and the protein should be kept at the minimum effective amount because of its action in increasing the heat production (Rubner) and because of the large amount of work it throws on the intestine and the kidneys. The results from one of our cases are given in the accompanying chart. Samples of the diets used are given in the table.

TABLE OF COMPOSITION OF FOOD DURING EXPERIMENT SHOWN IN CHART.

The numbers at the left refer to corresponding numbers on the "nitrogen balance" curve in chart.

		Gm.	Calories.	Per Cent. Total Calories.	Calories Per Kg. Body Wt.
1.	Protein	60	245	7.8	
	Fat	80	745	23.7	
	Carbohydrate	525	2150	68.5	
			3140		58.
2.	Protein	56	230	6.2	
	Fat	78	725	19.5	
	Carbohydrate	670	2750	74.3	
			3705		69.
3.	Protein	53	217	8.7	
	Fat	63	585	23.6	
	Carbohydrate	410	1680	67.7	
			2482		46.
4.	Protein	75.5	310	8.2	
	Fat	120.4	1120	29.8	
	Carbohydrate	569	2330	62.0	
			3760		70.
5.	Protein	16.2	66	2.0	
	Fat	108	1004	30.3	
	Carbohydrate	547	2240	67.7	
			3310		62.
6.	Protein	84	345	20.0	
	Fat	96	893	51.7	
	Carbohydrate	120	490	28.3	
			1728		32.
7.	Protein	85	349	8.8	
	Fat	122	1234	28.7	
	Carbohydrate	583	2390	62.5	
	Alcohol		80		
			3953		73.

Our results with other cases show essentially the same thing, although in some cases there was no gain, but a continued slight loss of one gram or so per day. On the high caloric diets, however, the patients were almost always in a condition not far from nitrogen equilibrium.

Our results show, we believe, that the febrile loss of body protein, including the result of the three factors, undernutrition, pyrexia and the action of toxins, may be retarded and even wholly prevented, or compensated for. But the results show likewise how difficult this is to accomplish. It was only when we gave sixty to seventy or even eighty calories per kilogram—between 3,000 and 4,000 calories—that the greatest sparing was observed.

The important point is, however, that it is possible to give typhoid patients such liberal diets without, so far as our experience shows, producing any harmful results, but, we believe, with decided benefit.

Having learned that it is possible to retard the febrile loss of body protein, we have still to decide whether it is desirable to do so in typhoid fever.

There are many objections, some apparent and others real, and many formidable difficulties; but I know of no reason why we should not attempt to do all in this direction that the circumstances will allow. Among the possible objections to liberal feeding in typhoid is the commonly supposed digestive limitation of these patients. The digestion in typhoid fever undoubtedly has its limitations, but they are not such as to prevent the proper absorbtion of amply sufficient food if given in the proper form. The experiments of von Hoesslin,[13] Leyden and Klemperer,[12] Puritz,[10] Folin[14] and others show very positively that the average typhoid patient absorbs food from his intestine almost as completely as does the healthy individual. Only in the severest cases is the absorption very materially decreased. In the average case without profuse diarrhea the digestion of protein, fat and carbohydrate is within 10 or 15 per cent. of the normal. Folin,[14] in his recent work on typhoid, has directly determined the degree of absorption of carbohydrates and has found it practically normal.

What seems to me an objection to liberal feeding in typhoid fever is the effect of the protein in increasing the heat production. Rubner[15] has shown how a strict protein diet in a dog may increase the heat production more than 50 per cent. The effect in a human patient could never be so great, but with the decreased heat loss in fever it is quite possible that this factor may be of considerable importance. This objection does not hold against the diets Coleman and I have used, but may apply to the high protein diets used by others. Carbohydrates have only a very slight effect in increasing heat production.

The objection has been raised to the use of large quantities of carbohydrates, from the fear of fermentation and tympanites. I can only say that we have had no such experiences with the use of milk sugar or starch.

The greatest practical difficulty that we have so far encountered in this work is the choice of food products. After trying or considering various carbohydrates we have used milk sugar almost wholly. This has the advantage of fermenting only with difficulty and of being less sweet than cane sugar and much more soluble than any form of starch. Milk, diluted cream, and eggs have been used to furnish protein and fat. Cocoa, lemon juice, tea, coffee and other things have been used as flavoring agents and as vehicles for milk sugar.

The patients did not object to our diets more than to milk alone, but some persuasion was frequently necessary to get them to take the amounts of food found to be necessary for our purposes.

The full advantages as well as the possible objections to our dietetic plan have still to be demonstrated; but there are a few reasons in favor of such liberal nourish-

13. Virchows Arch. f. Path. Anat., 1882, lxxxix, 317.
14. Unpublished experiments.
15. Rubner: Die Gesetze des Energieverbrauchs, 1902.

ment for typhoid patients which are worthy of consideration at this time.

As I pointed out earlier, the average typhoid patient receives at present 50 per cent. or less of his energy requirement. This is half starvation: and we know that starvation is harmful even in health, in that it leads to weakness and to an increased susceptibility to many infectious diseases. If starvation is harmful in health why should it be beneficial in typhoid fever? During the course of typhoid fever great demands are constantly being made on the defensive power of the organism; and it certainly does not seem probable that the patient will be as well prepared to meet those demands when in a starved or half-starved conditions as when he is being supplied with sufficient energy in the form of food.

It is a common laboratory observation that strong, robust, well-fed animals develop the strongest artificial immunity: and it seems fair to believe that we are assisting the patient to acquire his immunity to typhoid fever by keeping his nutrition at the highest possible level. Is it not possible that one of the factors determining the outcome of the disease may be the state of nutrition in which the body cells are maintained? Retarding the loss of body protein should leave the patient at the end of the fever in better physical condition and so make possible a shorter convalescence.

This sort of reasoning is, however, largely speculative; and long experience alone can tell the true value of such treatment. We can merely say at present that it is possible by the means already outlined to retard and even to prevent the febrile loss of body protein.

414 East Twenty-sixth Street.

DISCUSSION.

DR. LAWRENCE LITCHFIELD, Pittsburg: During last summer I spent a great deal of time reading all I could find in the Surgeon General's Library on metabolism in typhoid, and from the crude experiments of Leyden, published in 1869, attempts made by increased feeding to prevent or control the loss of weight during the course of the fever, through the work of von Hösslin, whose classic article was published in 1882, and the excellent work of von Leyden, Klemperer and others down to that of Lüthje, who published in 1902 the report of his successful attempts to establish a plus nitrogen balance during the period of steep curve, though with very high proteid feeding, this work of Drs. Shaffer and Coleman is unquestionably the best that has been done on the metabolism of typhoid up to the present time.

THE BACTERIOLOGIC DIAGNOSIS OF TYPHOID FEVER.*

FRANCIS W. PEABODY, M.D.
BOSTON.

Since the introduction of modern laboratory aids in the recognition of typhoid fever the problem which has presented itself to practitioners of medicine is that of more accurate and earlier diagnosis. The demand for a scientifically accurate diagnosis is the outcome of the realization that clinical typhoid fever is a disease which may be caused by any one of several bacteria. The physician of the present day is no longer satisfied with the old term "enteric fever." He tries, so far as possible, to supplement his clinical diagnosis by an accurate bacteriologic diagnosis. The establishment of the bacteriologic diagnosis is only to be accomplished by the isolation of the specific organism infecting the individual patient.

From a practical standpoint the question of early diagnosis is of much greater importance than that of absolutely accurate diagnosis. To the individual patient early diagnosis in typhoid means better treatment, better nursing, perhaps more adequate domestic arrangements, and often a great saving of strength during the first stages of the disease. Moreover, if we are to have any specific method of treating typhoid, its value will probably depend to a great extent on the time at which its use is begun. In the sphere of preventive medicine the problem of the early diagnosis of typhoid has lately assumed enormous proportions. That the typhoid patient is a source of danger to the community during his sickness has long been recognized. That he may continue to disseminate the bacilli for months and years after his convalescence is now becoming a well-known fact. That he may, and doubtless often does, spread the contagion even before he shows any clinical symptoms of the disease, that the disease is infectious during the incubation period, has, however, only recently been proved. Conradi,[1] in a striking article, has demonstrated that the typhoid bacillus can be isolated from the blood of an apparently healthy individual, and has shown that in eighty-five cases of so-called "contact infection" the infection occurred in 58 per cent. of the cases during the first week. In the fight to limit the spread of typhoid fever the task of isolating and controlling the late dangerous cases, the chronic bacilli carriers, falls to a great extent on the public health authorities. The detection of the early bearers of contagion must, however, be the duty of the individual practitioner.

Although the bacillus of typhoid fever may be isolated from various sources, the only methods which have proved themselves to be of considerable value are the examinations of the urine, the stools and the blood. The first of these—the urine—has never come into special prominence as a routine procedure. The organisms can be isolated from the urine in about 25 per cent. of the cases, and often early in the disease; but this percentage of favorable results is hardly sufficient to warrant the method being used very extensively.

The examination of the stools as a diagnostic measure in typhoid appeared at one time to have a brilliant future. The conception of the disease as an intestinal infection went hand in hand with the idea that the dejecta swarmed with typhoid bacilli. The first difficulty encountered was the necessity of differentiating the typhoid from the colon bacillus. In answer to this need there was brought forward a long series of special culture media on which these organisms could be distinguished from one another with more or less accuracy. Some of these media were difficult to use, others comparatively simple. All of these methods, however, for their success depend on being used by skilled bacteriologists; and even so, the results obtained by them have not, on the whole, been favorable. In the hands of some observers they have done well, and there are many series of cases in which the bacilli have been isolated from a large percentage of the stools. Other equally good workers have failed to confirm these results and have only been able to find them in a comparatively small proportion of their cases. The conflicting reports as to

* Read in the Joint Meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

1. Deutsch. med. Wchnschr., 1907, p. 1684.

the frequency of the presence of the bacilli in the feces are, however, at least partially explained in the light of our present knowledge of the disease. If, instead of regarding typhoid as a primary intestinal infection, we regard it as a primary septicemia, which usually has secondary intestinal lesions, with a secondary infection of the gall bladder, the uncertainty of finding the organisms in the stools is more easily accounted for. There is good reason to believe that the intestine and its contents form a very poor culture medium for the typhoid bacillus, for autopsy may show a gall bladder with bile so infected with typhoid bacilli that a single drop will give hundreds of colonies, while cultures from just below the ampulla of Vater, and from the intestinal contents at different points down to the cecum, will not show the presence of a single typhoid colony. It is possible, on the other hand, that the organisms growing in the gall bladder from time to time may be discharged into the intestine in such large numbers that many of them survive the passage of the intestine and may be isolated from the feces. It is a clinical fact that many negative examinations in a case may be followed finally by a positive examination, thus making the element of luck a prominent factor in the value of the process. The different results obtained by various observers may be accounted for also in some degree by the viability of the special race of organisms infecting the case. It is probable that some races of the typhoid bacillus are much more resistant to the hostile conditions in the intestine than are others. An analysis of the cases in which the organisms have been recovered from the stools shows that this method of diagnosis may often be useful in early as well as in late stages of the disease, but the difficulty of the technic, together with the relative uncertainty of the results, makes the method of comparatively small value as a routine procedure. The examination of the stools is, on the whole, chiefly important in the recognition of chronic bacilli carriers.

If typhoid fever is primarily a septicemia, it is natural to seek for the first signs of the disease in the blood itself. Since Castellani[2] first isolated the typhoid bacillus from the blood of a patient in 1899 the numbers of workers with blood cultural methods has shown a steady increase from year to year, and the literature on this branch of diagnosis has lately exceeded any other. Whereas the first reports on the subject were rather of bacteriologic and pathologic interest, the larger series of cases which have since been collected have shown that the method is of clinical value as well, and have begun to establish it on a practical basis.

The technic which has been most commonly used in making blood cultures has been thoroughly to clean the patient's arm and to take with a syringe about 10 c.c. of blood from one of the veins at the bend of the elbow. The blood is then distributed into several flasks of bouillon and diluted by the medium to such an extent that its bactericidal properties are overcome. Although this method has given excellent results in many hundreds of cases, there is no wonder that it has never become a routine procedure outside of a comparatively few large hospitals. It is distinctly a laboratory rather than a clinical method. Apart from the necessity of having a more o. less trained bacteriologist to work out the culture, there are marked objections to the method itself. The culture medium is too bulky; it is often inconvenient to carry flasks of bouillon to the bedside. Then the technic of drawing the blood is not always simple. In fat persons, or in those with small vessels, it is at times almost impossible to insert the point of the needle into a vein. Of more importance, however, is the fact that to the patient and to the family the method must always appear to be a somewhat radical procedure. This is alone sufficient to limit the extent to which even a measure of recognized value will be used as a routine practice.

In order that any diagnostic method shall be accepted by practitioners in general, it must be stripped of all its technical difficulties and reduced to its simplest terms. Toward the accomplishment of this, and toward making the blood culture a practical aid in the diagnosis of typhoid fever, there has been much advance in the last few years. The first step of importance was the introduction by Conradi,[3] in 1906, of ox bile as a culture medium to replace bouillon. The peculiar advantage claimed for the new medium was that the bile salts prevent the coagulation of blood and the formation of bactericidal elements in the blood serum. Whether or not this explains the whole of the action of bile has been doubted. However, from the frequency with which the gall bladder is found infected at autopsy, and from the fact that in chronic bacilli carriers the gall bladder is the usual seat of infection, it is evident that bile must be especially well suited for the growth of the typhoid bacillus. By Conradi's original method, test tubes containing a mixture of ox bile with peptone and glycerin were used. The peptone was added to increase the growth and to aid in preventing coagulation of the blood. The glycerin was to limit the growth of saprophytes. Kayser,[4] however, later demonstrated that as good results can be obtained from the use of pure ox bile alone, and he showed that if the blood added to the medium contains even as few as 2 or 4 bacilli the cultures after incubation will give a profuse growth. Working on another line toward a practical blood-cultural method, Müller and Gräf[5] have reported a series of cases in which they used small amounts of coagulated blood sent to the public laboratory for agglutination tests. After separating the clot from the serum, they used the latter for the agglutination, and the former they rubbed over the surface of Drigalski-Conradi plates. The plates were then incubated, and in 360 cases, including convalescents and chronic bacilli carriers, they were able to isolate the organism in 110, including 10 cases of infection with the paratyphoid bacillus. The disadvantage of such a plate method is that there is no increase in the number of organisms, and if not numerous they might be overlooked or overgrown by saprophytes. Fornet[6] has devised a method analogous to that of Kayser, in which he also uses the clot of blood sent in to be tested for the agglutination reaction, planting it in bile, and examining the culture after incubation. Of a series of 19 cases, 14 gave positive results. It is not expected that this will replace the technic of Conradi and Kayser, but it is a valuable method when it is impossible to get the uncoagulated blood into bile.

Of these various simplified blood cultural methods, one of the most satisfactory is the use of the medium of Kayser with small amounts of blood obtained from the patient's ear.[7] The technic is as follows: The lobe

2. Zentribl. f. Bakt., 1902, xxxi, p. 477.

3. Deutsch. med. Wchnschr., 1906, p. 58.
4. Kayser: Münch. med. Wchnschr., 1906, pp. 823 and 1953.
5. Zentribl. f. Bakt., 1907, xliii, p. 856.
6. Münch. med. Wchnschr., 1906, p. 1053.
7. Peabody: Arch. Int. Med., 1908, i, p. 149.

of the ear, after being carefully cleansed with sterile gauze and alcohol, is pricked rather deeply with a small lancet-pointed knife, the blood squeezed out drop by drop, and allowed to run into a test tube containing about 5 c.c. of plain, sterile ox-bile. It is usually easy to collect 2 c.c. of blood without any inconvenience to the patient. The mixture of blood and bile is then placed in the incubator at 37° C. for from 12 to 15 hours, after which a few loopfuls are transferred to a tube of Löffler's blood serum. In some cases, examination of a drop of the original bile culture after incubation shows the presence of a motile bacillus, but more often this is better demonstrated in the water of condensation of the blood-serum tube after about five hours. The presence of a motile bacillus is in itself excellent evidence in favor of an infection by one of the typhoid group; but in order to prove the organisms it is customary to test them for their cultural characteristics and for the agglutination reaction.

That this simplified method is one of clinical value has been proved many times. At the Massachusetts General Hospital, where it has been used as a routine measure in all cases of typhoid during the past few months, it has been the means of establishing the diagnosis in 55 of 82 cases examined. In 28 per cent. of the cases the culture gave the diagnosis before the agglutination test. In the first week the culture was positive in all of 17 cases; in the second week, in 70.2 per cent. of 37 cases, and in the third and fourth weeks, in 42.8 per cent. of 28 cases. The agglutination test was positive in 52.9 per cent. of the cases in the first week, in 67.5 per cent. in the second week, and in 82.1 per cent. in the third and fourth weeks. The results are similar to those obtained in larger series of cases, in which the old method of taking a greater amount of blood from a vein has been used.

It is thus evident that in the ox-bile culture method we have a measure of considerable diagnostic importance in the early stages of typhoid fever. It is, moreover, a method which can be used, not only by trained bacteriologists, but by any practitioner. When a man can not do his own bacteriologic work the culture may be sent to a laboratory to be worked out. In Germany some of the large chemical firms have put on sale tubes of bile so sealed that they can be sent through the mail to the public laboratories, where the cultures are incubated and the diagnosis made in the same way in which the public health laboratories in this country perform the agglutination reaction. The physician merely has to prick the patient's ear, collect the blood, and put the tube in the mail. The technic is thus only slightly more troublesome than that of the Widal reaction, and when it is considered how valuable the method is in making an early and accurate diagnosis it would seem that the blood culture must assume a major rôle in the future.

Of all laboratory methods in the diagnosis of typhoid fever there is none which has been used so extensively, or has given such excellent results in the hands of many clinical observers, as has the agglutination reaction. That it has been generally adopted the world over is due to its high degree of accuracy combined with its simplicity. The establishment of public laboratories, where samples of blood are examined for individual practitioners, has brought the test within the reach of a vast number of physicians. While, however, the reaction has proved itself of inestimable value, there are certain important drawbacks to its use. The chief of these is that the agglutination reaction is often late in making its appearance. It is frequently not obtained during the first week of the disease, and while it is present in about three-quarters of the cases during the second week, it may be delayed much longer, and even into convalescence. Its value is, therefore, limited at the very period in the disease in which a diagnostic test is most needed: for while it is often comparatively simple to recognize typhoid fever in its later stages, it is at the onset, during the first week, that the most doubt arises, and it is in the early days of the disease that the danger of contact infection is probably greatest. Moreover, there are certain atypical cases in which the reaction is never obtained. Next to the lateness of the appearance of the agglutination test, its greatest disadvantage is that it is not absolutely specific. It does not always give an etiologic diagnosis. That an agglutination of the typhoid bacillus may be produced by the serum of a patient infected with one of the paratyphoid bacilli is not of great clinical importance; but that the test may be obtained in cases in which the etiologic organism is the pneumococcus,[7] the *Bacillus proteus*,[8] or some other organism not closely allied to the typhoid group, is a fact not to be neglected. The exact percentage of error in the agglutination test it is, of course, impossible to calculate. That it is, however, a very appreciable error any one who has had occasion to use the test extensively must realize. In spite of the fact that the agglutination reaction is in itself by no means an ideal diagnostic measure, it is of the utmost value in certain cases, and especially so when taken in conjunction with the blood culture. In the early stages of the disease, before the agglutination test is positive, the diagnosis is made in most cases by the culture; and in the later stages, when the organism can no longer be isolated from the blood, the agglutination reaction is usually present. Thus the one test is supplemented by the other, and in these two comparatively simple clinical methods—the agglutination test and the blood culture in ox bile—we have the means of making an accurate diagnosis of typhoid fever, in the great majority of cases, at any stage in the course of the disease.

DISCUSSION.

DR. R. L. JONES, Nashville, Tenn.: One of the most important additions to our knowledge of the subject of typhoid fever made in recent years is the means for an early diagnosis, which has been made practicable for us by Dr. Peabody. He will place us under still further obligation if he will make the technic clearer. I have been engaged in this work and have had to work out some of the technic myself. Does the kind of ox bile used make any difference? I find that it is quite different when you get a steer in good condition whose bladder contains considerable bile; the bile will be of a bright green color, while that from a cow or steer not in good condition is more apt to be of a golden yellow color. Butchers tell me that this is the rule. This bright green bile if kept some time will change to the golden yellow color, and I have found that it takes the typhoid organisms longer to develop in the golden yellow bile. If Dr. Peabody uses fresh bile I would like to know how fresh; how long it will keep after sterilizing; and if there is any method by which we can keep it indefinitely in stock.

DR. FRANCIS W. PEABODY, Boston: I can only say that we have never had any trouble at all. We have taken the bile from several different animals and used it as it came from the slaughter-house. Lately we have been using pig's bile, which seems to give as good results. As to keeping the bile after it

8. Zeit. f. klin. Medizin, 1905, p. 27.

is sterilized, we have had no difficulty on this point, and have used successfully bile that was four months old. It was sterilized as soon as it came from the slaughter house, kept in bulk in the ice chest, and put into test-tubes as it was needed.

TYPHOID BACILLI CARRIERS.*

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The obscurity of the origin of a large percentage of typhoid fever outbreaks led many observers to the supposition that perhaps some saprophytic member of the colon group might change under bad hygienic conditions to the typhoid bacillus.

Further investigation revealed the fact that a small percentage of persons after recovering from typhoid fever pass typhoid bacilli in the urine. The attack of typhoid fever in some of these cases had been a number of years before. Continued examinations showed that these cases were comparatively rare, and it did not seem possible that they could account for all outbreaks of typhoid fever, where one could not trace the infection to those having the disease.

In 1902 von Drigalski and Conradi found typhoid bacilli in stools of four persons who had had no typhoid fever symptoms, but had been in contact with typhoid patients. Soon it was found that a number of typhoid convalescents continued to pass typhoid bacilli for long periods after recovery. Examinations of persons who had had typhoid fever years before revealed the remarkable fact that 1 or 2 per cent. of them were passing typhoid bacilli, sometimes in enormous numbers. The knowledge that the gall bladder had been found infected at operations for calculi suggested this as the source of the bacilli.

A number of autopsies or operations have since been held on these typhoid bacilli carriers and proven this to be the case. Thus, Levi and Kayser reported, in 1906, a case of a woman, 49 years old, who had had typhoid fever in 1903 and made a good recovery. In 1906 the woman died from some other disease; autopsy was held nineteen hours after death. Typhoid bacilli were present in the liver, in the wall of the gall bladder and inside a number of calculi.

Kayser reports that in Strassburg during the year 1904-5 13.5 per cent. of all cases of typhoid were traced to 6 of these typhoid carriers, all of whom were women and gave histories of having had typhoid from one to 27 years before.

A large number of cases of typhoid fever have now been traced to these chronic bacilli carriers. Thus, Lentz states, in 1905, that seven physicians had then reported typhoid cases from bacilli carriers. The first reports the case of a patient who had had typhoid 3 years before, who was known to cause 2 cases of typhoid; the second reports 4 typhoid carriers, who had had typhoid as long ago as 42 years, 15 years, 13 years and 12 years, respectively. To these 4 were traced 12 cases of typhoid. The third reports a typhoid carrier who had typhoid 19 years before, who caused 6 cases of typhoid. The fourth reports a carrier who had had typhoid 1½ years before, but to whom no cases had been traced; the fifth had a patient who had had typhoid 17 years before and had caused 27 cases; the sixth had a patient who had had typhoid 10 years before and had caused one other case, and the seventh reported a bacilli carrier who had had the disease 17 years before. To this last individual 2 cases were due.

Out of 400 recorded typhoid patients Lentz found that 6 retained the bacilli at the end of periods ranging from 3⅓ to 13 months. Klinger examined the feces of 1,700 healthy persons who had never knowingly had typhoid and found bacilli in 11.

When the bacilli were in the stools of typhoid carriers, Lentz found that he could not get rid of them by any treatment. Their retention is due, he thinks, to faulty metabolism and concomitant chronic disease. Faulty care during convalescence may also be a cause.

He notes the predominance of women who are carriers over men, and especially married women who have borne children.

In most cases, the bacilli are present in great numbers. Lentz suggests that the gall bladder may not be the only source, but that the appendix and the deeper folds of the intestine may also be involved.

In conclusion, he suggests the following procedures for controlling these carriers. These, as we note later, can hardly be carried out except in special cases.

1. Disinfection of stools.
2. Disinfection of privies.
3. Police notification.
4. Bacteriologic control of stools.
5. Prevention of any occupation in which the carrier is in a position to infect others.

INVESTIGATIONS ON TYPHOID CARRIERS AT THE RESEARCH LABORATORY DEPARTMENT OF HEALTH.

History.—On March 20, 1907, a cook was brought to the laboratory to have the feces and urine examined. The history as developed by Soper revealed the fact that during the past eight years she had been employed in eight families and in seven of these typhoid fever had broken out within a few weeks or months of her arrival. In all twenty-six cases and one death occurred. Just before her removal to the Department of Health two cases had developed in the family where she resided and one patient died. Bacteriologic examination revealed the fact that fully 30 per cent. of all the bacteria voided with the feces were typhoid bacilli. The urine was negative. Careful cultural and agglutination tests showed that they differed in no respect from bacilli obtained from acute cases. The repeated outbreaks occurring after her entrance in families were in themselves proof that the virulence of the bacilli had remained intact. A curious feature of the case is that the woman denies that she ever had typhoid fever.

Treatment.—This woman has now been isolated for sixteen months. Weekly examinations of the stools have usually revealed large numbers of bacilli, but there have been several intervals when for one or two weeks no bacilli could be detected. Treatment by intestinal antiseptics has proved unavailing. Hexamethylenamin in doses gradually increasing from 100 up to 150 grains a day, has been given for a number of weeks with no apparent benefit. Attention to diet and mild laxatives has caused the greatest reduction, but not their disappearance. This suggests that the chief development of the bacilli is in the intestines, although the source of the infection is probably the gall bladder.

The case of this woman brings up many interesting problems. Has the city a right to deprive her of her liberty for perhaps her whole life? The alternative is to turn loose on the public a woman who is known to have infected at least twenty-eight persons.

This case excited so much interest that I decided to

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* Read in the Joint Meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

have tested a large number of typhoid convalescents. Eight months ago there was a typhoid epidemic at the Trenton (N. J.) State Insane Asylum. Through the courtesy of those in charge we were able during the past two months to examine the stools from 52 persons who had had typhoid at that time; 2 of these were found to pass numerous typical typhoid bacilli. Their stools were examined four times. One case revealed the bacilli only once, in the other they were present every time.

The stools of 16 persons, who had suffered from typhoid fever in the Long Island State Asylum, were sent us by Dr. Agnew. Two of these persons were found to pass abundant typical typhoid bacilli; they had been well for six months. Repeated examinations have shown the constant presence of bacilli. One of these cases was so mild that the patient was only suspected to have typhoid fever because of the other cases of that disease.

We have, therefore, found typhoid bacilli in the stools of 6 per cent. of the cases examined. During the autumn we examined the feces from a large number of persons convalescent from typhoid fever just as they left the hospital and found bacilli persisted in the feces of about 5 per cent. It was impossible to trace the cases further.

The bacteriologic tests were carried out by Dr. Goodwin and the Misses Noble and Pratt, bacteriologists in the Research Laboratory.

These examinations indicate that the same conditions exist in this country as in Europe, namely, that fully 2 per cent. of persons who have had typhoid fever are typhoid bacilli carriers. A few of these pass infected urine, but most infected feces. Besides these there are numerous typhoid carriers who never had typhoid fever, but through contact with infection became bacilli carriers. Probably at least one in every five hundred adults who have never knowingly had typhoid fever is a typhoid bacilli carrier.

As the majority of typhoid cases occur before the age of 30, the average life of typhoid carriers is fully 25 years, so that we have the somewhat appalling fact that there are at least half as many recovered typhoid cases who are typhoid carriers as there are typhoid cases in any year and that, besides these, there are the typhoid carriers, such as the cook, who have never had typhoid fever.

What can we do under these circumstances? It seems to me that any attempt to isolate and treat on bacteriologic examinations, as Lentz suggests, is impracticable. When we consider that the presence of the bacilli in the feces of these persons is often only occasional, that numerous contact cases having never had typhoid fever would not come under suspicion, and finally, the impracticability of isolating for life so many persons, we are forced to consider isolation utterly impracticable, except as in the case of the cook already described, where conditions increase the danger to such a point that an attempt at some direct prevention becomes an essential.

We must, therefore, as before, turn to the more general methods of preventing infection, such as safeguarding our food and water, not only chiefly when typhoid fever is present, but at all times, for we now know that in every community, whether it be large or small, unsuspected typhoid bacilli carriers may always be present.

DISCUSSION.

DR. HENRY ALBERT, Iowa City, Iowa: A small epidemic of typhoid fever, traceable to a bacillus carrier, occurred in Cedar Falls, Iowa, last fall. It was an epidemic of thirteen cases of typhoid, occurring at about the same time in three families that lived in the same neighborhood. The water supply was first investigated and it was found that these families were using the ordinary supply of the city, the same as that used by a majority of the people. The water supply as the medium of infection having been ruled out, the milk supply was next investigated and it was found that the families in which the cases of typhoid occurred all obtained their milk from one source, and that no other family in the city was supplied from this source. We then investigated more in detail as to the possibility of the contamination of the milk and found that the owner of the cow, who also did the milking, had had typhoid about fifteen months previously, but had not had a sign or symptom of typhoid since, or for more than a year. A bacteriologic examination of the urine and feces of this man was made and typhoid bacilli found in the urine in considerable number. There was no evidence of an inflammatory condition of the kidneys or bladder. We felt reasonably certain that the epidemic was caused by this bacillus carrier. Hexamethylenamin in the form of urotropin was given and in a few weeks the urine was free from the typhoid bacilli. I feel certain that other epidemics I have observed in the past were caused by individuals of this kind.

DR. WILLIAM LITTERER, Nashville, Tenn.: The subject of typhoid carriers is an exceedingly important one. I have in mind a patient who had typhoid fever one year ago. The patient subsequently developed a post-typhoid necrosis of the rib which was operated on by Dr. W. A. Bryan of Nashville. A sinus appeared and a large amount of pus exuded from this wound, something like four or five ounces a day. This condition existed for three months, the patient growing weaker, rapidly losing flesh, and vague pains developed throughout the body. The surgeon requested that I isolate the organisms in said pus and make a vaccine according to the method of Wright. This I did and much to my surprise I found pure culture of the *Bacillus typhosus* in enormous numbers. I take this to be unique inasmuch as no other organism, such as the pyogenic cocci or other bacteria could be found in this exuding sinus of over three months' standing. I made a comparative estimate of the number of typhoid bacilli in this pus and found that an ordinary platinum loop full contained nearly a half million of bacilli. This case could be rightfully considered as one of a typical typhoid carrier and an especially dangerous one if the discharges from the sinus were not destroyed. Two months' injection with the autogenous typhoid vaccine produced very gratifying results. The patient is much stronger, gaining steadily in weight and there is an absence of the vague pains throughout body. The sinus has almost healed, only about half a dram of pus exuding in the twenty-four hours. Recently I made another bacteriologic examination and found only a few typhoid bacilli and some specimens of *Staphylococcus pyogenes aureus*. If the patient ceases to improve I intend to make a staphylococcic vaccine and inject this, with the typhoid vaccine. Dr. Park has called attention to the fact that many of these "carriers" have an infected gall bladder, and it has been suggested by some that, in order to cure this condition, a surgical operation would be necessary. It might be possible to try vaccine therapy in curing these conditions.

DR. M. J. ROSENAU, Washington, D. C.: I can not take Dr. Park's place, but feel sure that if he were here he would say that "typhoid Mary" refuses to submit to surgical interference. She is perhaps justified in this conclusion, because the gall bladder is not the only source of the typhoid bacilli that appear in the feces. Surgical interference therefore may not always correct the condition. Sometimes the feces of these carriers contain such large numbers of typhoid bacilli as almost to displace the colon bacillus; it seems that the typhoid bacillus may take up a natural habitat somewhere in the intestinal tract indepedendent of the gall bladder. We have not been able to find a chronic bacillus carrier of this type in Washington.

THE TREATMENT OF TYPHOID FEVER.*

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BALTIMORE.

There is no intention in this paper to endeavor to discuss all the phases of the treatment of typhoid fever, but those will be considered about which there is the greatest difference of opinion or which deserve special emphasis. In the consideration of the handling of a patient with typhoid fever we must always have the individual in mind and care for him rather than treat a disease. No one method suits every patient any more than clothing made to one measurement fits every man. The man can exist whether the clothing suits his figure or not, but he is not garbed to the best advantage. In the same way one method of treatment may bring a certain patient through the illness, but not in the easiest or best way. It seems to me that the importance of drilling this fact into our students should be more realized by those of us who are teaching therapeutics—and every clinical teacher must consciously or unconsciously be teaching something about the care of the patient—for there would be less of rule-of-thumb methods if individuality in treatment was the rule in the minds of each one of us.

DIET.

Much controversy has been waged over diet. Most of us have our own ideas and are not easily convinced that any others can be better. No matter what views are advanced some one will disagree vigorously, which is by no means a disadvantage. This divergence of opinion is not surprising when we consider what a protean disease this is and as much so in the ways in which it is handled as in its manifestations. Many patients will go through an ordinary mild attack with any reasonable kind of food, but I feel that in the attack of ordinary severity and in all severe attacks, the simpler the diet the better for the patient. Milk and albumin water are satisfactory, easily obtained and prepared, and cheap. We should always be careful to make certain that we are not giving contaminated milk. For the account of a good object-lesson as to the importance of this precaution a paper by Edsall[1] may be consulted. To these may be added the various modifications of milk, of which whey is specially useful, bouillon, strained gruel, ice cream, tea and coffee, and sometimes cocoa; this list really gives considerable choice. Emphasis should be laid on the value of whey in the dietary. In the conditions in which milk disagrees whey may be given with great advantage. The importance of carefully watching the stools and being guided by them as to changes in the diet should be remembered. In all cases special emphasis should be laid on the giving of large amounts of water. Let one hundred ounces (3,000 c.c.) of urine a day be the minimum to be desired, and often it is better that larger amounts than this should be passed. Consider the experience of the Lakeside Hospital in Cleveland,[2] where it was found to be a saving in the time of the nurses to have one nurse especially detailed to do nothing else than give water to the typhoid fever patients. There does not seem any evidence for the opinion held in some quarters that there is the possibility of harming the kidneys. The work of Sollmann and Hofmann[3] speaks against this. The voiding of large quantities of urine does not seem to cause the patients any disturbance. There does not seem to be any danger of giving the circulation too much work to do in handling this fluid. One should use judgment if the myocardium is weak, but in a large series of cases no evidence of overloading of the heart was found.

There are certain intestinal conditions in which there seems no question of the advantage of the simple diet. These are especially meteorism and perforation. With any tendency to tympanites, it is wise to give the simplest diet and not too much of it; when tympanites is present the diet should be reduced. Therefore, does it not seem that on the simple diet there is less chance of its appearance? I am of the opinion that liquid diet and large amounts of water are the surest preventives of meteorism. Certainly when this treatment is carried out the occurrence of meteorism is reduced to a minimum, and the best treatment of meteorism is its prevention. If perforation occurs and operation is done early, it is a great disadvantage to have the intestines distended or full of material. We can count on a certain percentage of perforations in any large series of cases, but we can not tell at the outset which ones are to perforate.

Under the heading of diet reference must be made to the so-called predigested foods, which are so extensively used. Is their use justified or to be recommended? Many of the profession by their actions answer in the affirmative and the question comes as to how much justification there is for this belief. I would advise all those who have any doubts on this subject and those who believe in the value of these foods to read with an open mind the report[4] of the Council of Pharmacy and Chemistry of the American Medical Association on them. The main objections to their use may be thus summed up:

1. They contain comparatively little nutriment.
2. They may be directly injurious from the presence of peptones or albumoses, which are of uncertain composition and may be toxic or become so.
3. The presence of alcohol in them may be harmful.
4. They are expensive.

Clinically they certainly appear in some cases to upset the stomach and cause diarrhea and distention. To give amounts of these foods which would go even a small way toward nourishing the patient, means the administration of considerable amounts of alcohol. If alcohol is to be given, it is better to give it as such and not as the constituent of one of these foods.

That any one who knows their composition can persist in considering that they have some mysterious nutritive virtue is hard to believe; and yet how else can we explain the blind belief in their value, especially when we consider that they are "drug-store" foods and may have had some time to "ripen" before being used? Their cost is a serious objection, especially when so little is obtained in return.

CARE OF THE BOWELS.

An initial purge is advised by many authorities; but is anything gained by it? It is asserted that

* Read in the Joint Meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

1. New York Med. Jour., 1905, lxxxi, 578.
2. Cushing and Clarke: Am. Jour. Med. Sc., 1905, cxxix, 187.
3. Am. Jour. Med. Sc., 1905, cxxix, 195.
4. THE JOUR. A. M. A., 1907, xlviii, 1612.

there is an advantage in emptying the bowels. The patients who are not purged seem to do just as well—in fact, better. A study which I made of five hundred cases, in which this point was specially noted, showed that diarrhea, not only at the onset, but during the course, occurred in a much larger number of those who were given an initial purge than in those whose bowels were left alone. If the patient's intestinal tract is not disturbed and a simple diet with much water given, it is surprising how infrequently diarrhea occurs.

Constipation is to be preferred and as a rule a movement every second day is often enough. If the bowels do not move themselves an enema may be given. This may be the ordinary one of soap and water, or oil and glycerin may be given. It is sometimes well to give an oil enema high in the bowel through a long tube, which, if necessary, may be followed by a simple enema. The comfort of the patient must be consulted; some patients are easier if the bowels are moved every day.

THE USE OF OPIUM.

In the majority of indications usually given for the use of opium I would oppose the views laid down in many of the books. The conditions for which it is generally employed are: First, restlessness and sleeplessness; second, diarrhea; third, hemorrhage, and fourth, abdominal pain.

1. *Restlessness and Insomnia.*—Here in small doses its use is sometimes advisable, but if indicated it often seems better to give small doses of morphin hypodermically.

2. *Diarrhea.*—Here, as is usually the case in diarrhea in general, opium should be the last drug to be used, instead of the first, as is too often the case. The cause should be searched for first, for too often this is left to act and opium is given to prevent the result. An initial purge, improper feeding, the giving of beef tea or predigested foods, the use of infected milk—any of these may be the cause. The diet should be cut down to albumin water, or if milk is given it should be boiled, and sedatives, such as bismuth, may be given. If opium is needed it should be given as the starch and laudanum enema. Given by mouth, opium favors distention and conceals the most valuable symptom of perforation, abdominal pain.

3. *Hemorrhage.*—Here the standard treatment is to give opium, especially in the form of the lead and opium pill. To this treatment, although sanctioned by tradition and authority, I would take exception. The advantage is claimed for it that peristalsis is lessened. Have we any proof that this is an advantage? It may lessen the chance of a clot being dislodged, but when we think how rarely a clot is found at autopsy in patients who have died after hemorrhage, the importance of this does not seem great. Against the use of opium there are several points. It increases the chances of distention, in itself a serious matter. In the case of gastric ulcer, distention increases the chance of perforation and the same is probably true of the bowels. Then in a considerable number of cases hemorrhage and perforation occur together. Give opium for the hemorrhage and we know the end. It comes painlessly, but surely. Any one who has been called in consultation to decide as to the possibility of perforation in a patient who has had large doses of opium, knows how hopeless it is to give any opinion. Then, too, the giving of large amounts of opium seems to have an injurious effect on the general condition of the patient.

4. *Abdominal Pain.*—Under no circumstances should opium be given, for this is our chief aid in the recognition of perforation. The men who treat many patients with typhoid fever and say that they never have perforation probably do one of two things, perhaps both (possibly it would be better to say they do one and leave the other undone); they give opium or do not have autopsies.

The first thing in the treatment of abdominal pain is to determine the cause. Evidently if it be due to a distended bladder, meteorism or impacted feces, we are not going to help matters, but rather make them worse, by giving opium. If the cause can be found the indications are clear; if it can not be found we must not give a drug which prevents our determining the cause, certainly in the more serious conditions. When the cause is not determined—and these cases are not very rare—simple measures, such as the application of stupes or small doses of bromid of potassium or codein may be enough. If the pain is not relieved by these, it may be necessary to give a small dose of morphin hypodermically (gr. $\frac{1}{8}$), which is always to be preferred to opium. In this dosage it is not likely to mask abdominal symptoms.

HEMORRHAGE.

There seems no doubt that the use of the calcium salts, preferably the lactate, is helpful. In hospitals, or elsewhere when possible, it is well to take the coagulation time of the blood when the patient comes under observation. If this be prolonged it is well to give the calcium lactate as a prophylactic measure. Too large doses should not be given; probably twenty grains a day is enough. In case of hemorrhage the drug should be begun at once and thirty grains a day may be given. When it is important to obtain a rapid action the calcium lactate may be given subcutaneously in a 1 per cent. solution. The use of astringent drugs, such as lead acetate, or the giving of ergot, does not seem to be of any use and the latter is perhaps harmful. Quiet is essential and if the patient is restless this may be secured by a small dose of morphin (gr. $\frac{1}{8}$) hypodermically. it is well to limit the amount of food by mouth, reducing the diet to albumin water or sometimes to water alone.

To keep the patient quiet, to limit the intake, to apply a light ice-bag to the abdomen, to give the calcium salts, not to give opium, and not to try to do too much, seem the main points in the treatment of this complication, which after all is not usually as dangerous as has been thought.

PERFORATION.

How many of the five thousand[5] patients every year in the United States in whom perforation occurs are saved and how many should be saved? If those two figures do not correspond, where is the blame? To determine how many should be saved is difficult, but it is a question whether we are sufficiently awake to the frequency of perforation, or to the importance of its early recognition and treatment. There is no doubt of the much greater difficulty in diagnosis and treatment when patients are treated at their homes than when they are in a hospital. Still, even here it would seem that much more might be done. To make an early diagnosis of perforation, preparations must be made beforehand. As a rule the diagnosis does not force itself on the care-

5. This is, of course, only a general figure. The actual number is probably much greater.

less observer. The lesson of the importance of prompt cooperation between the medical and surgical sides has been learned in many hospitals, but there are still some in which more attention might be given to this. The early recognition of this complication is as much a matter of treatment as anything else.

DISTENTION OF THE STOMACH.

While we are all aware of distention of the intestines, it is not so generally recognized that distention of the stomach is by no means rare. It may give considerable distress and affect both the respiration and the action of the heart. The passage of a stomach-tube gives immediate relief and no hesitation need be felt in doing it. The tube can be passed without raising the patient's head. It is well to cut down the diet to albumin water and to repeat the passage of the stomach-tube as often as necessary.

ALCOHOL.

The indications for the use of alcohol are much disputed and some of our extreme friends hold that its use is never justified. Certainly its routine use is not to be advised. I consider that the best indication for its use is toxemia. In some way or other the toxic patient can use alcohol, whether we consider it a stimulant or a food. When it is being given care should be taken to use a good variety, just as we make sure that the milk is good. The amount must be decided by the needs of the patient. Generally, when it is indicated, good doses are advisable, from six to twelve ounces in the twenty-four hours; two or three ounces in the same period are usually not enough. The statement is still repeated at times that the patient who is being given tub baths needs alcohol. This is by no means the case—quite the contrary. The patient who is receiving the tub treatment, as a rule, requires less alcohol, as toxemia is so much diminished. Alcohol does not require to be given merely because the patient is having baths.

HEXAMETHYLENAMIN.

When we remember the frequency of bacilluria and the very common presence of typhoid bacilli in the gall bladder, it seems wise to suggest the administration of hexamethylenamin (urotropin) to every patient. The work of S. J. Crowe,[6] who has shown that when this drug is given in sufficiently large amounts (75 gr. per diem) it appears in the bile in quantities sufficient to have a bactericidal action, proves the value of this. He also found that hexamethylenamin was present in the cerebrospinal fluid, synovial fluid, saliva, pleural effusion and blood. How much "killing out" of typhoid bacilli we can do by this means is as yet undetermined, but certainly these findings are suggestive.

The question arises as to the safety of giving such an amount of this drug (75 gr. per diem) to patients as a routine. There are reported instances[7] of hematuria following its administration. These are comparatively few, but further observations are necessary before positive statements can be made. With the number of patients of all kinds who are taking this drug it should not be long before we have definite statistics from a large number of observations. Painful micturition sometimes occurs, but it is not serious and disappears rapidly after stopping the drug.

Certainly in view of the fact that smaller doses (gr. 30 to 40 per diem) apparently prevent bacilluria, we should not hesitate to give these to every patient.

SEROTHERAPY.

It does not seem possible at the present time to speak with certainty as to the value of any of the various serums which have been used. The results claimed by Chantemesse are excellent, but have not been sufficiently verified by other observers.

PREVENTIVE INOCULATION.

While this has proved of some value in military medicine, especially when troops were to be sent to infected localities, yet the results have not been strikingly successful. That it can be of much value in ordinary practice seems doubtful, especially when we remember that it is not wise to employ it during the time of an epidemic, owing to the temporary increase in susceptibility following the inoculation. The "man in the street" is not likely to be willing to undergo it at other times.

THE PREVENTION OF INFECTION.

It is to this that we must devote more care than we have in the past. We quite understand what a man means if he says that he has attended ten patients who were seriously ill and brought them all through safely. But if he announced that he had attended ten patients without a single case of infection from them and no danger of infection in the future, we should wonder at first what he meant. Yet the second statement means more to the community and represents a great deal more thorough and commendable treatment than the first. It often requires care and brains and hard work to pull a patient through the attack, but it needs more of all three to ensure that he does not pass his infection on to some one else.

The work of recent years has brought to our notice certain methods of transmission which may be emphasized. One is the importance of contact infection. How much this means through the country may be guessed at perhaps by the number of cases which occur in our hospitals. "Accidents occur in the best-regulated families," but altogether too many "accidents" of this kind occur in our best-regulated hospitals. In reference to this point, an excellent study is that by D. L. Edsall,[8] which should be read by all those interested in the subject. The report of the Commission for the Study of Typhoid Fever in the Spanish-American War (Reed, Vaughan and Shakespeare), did much to bring out the importance of contact infection.

Another method is what may be termed intermediate contact, in which the bacilli are carried by flies. How difficult this is to prevent perhaps the country practitioner can tell better than his city confrère. Unfortunately we all know it. Then there are the so-called "carriers," who go about with a supply of typhoid bacilli which are being constantly distributed.

HOSPITAL TREATMENT.

When we turn to the question of the prevention of infection and the carrying out of the proper measures, we realize the tremendous difficulties involved. Until recently the custom in Britain of sending patients with typhoid fever to special hospitals seemed rather unnecessary, but we have learned how wise such a plan is. There seems no question of the necessity of our introducing very much greater care and more stringent regulations in handling the patient with typhoid fever.

6. Johns Hopkins Hosp. Bull., 1908, xix, 109.
7. Coleman: Med. News, New York, 1903, lxxxiii, 393.
8. Am. Jour. Med. Sc., 1908, cxxxv, 469.

In view of the constant occurrence of instances of infection in hospitals the need of greater care requires no emphasis. The other patients, nurses, orderlies and physicians are all exposed to this risk. Precautions which we should endeavor to carry out are discussed under various headings.

a. Isolation.—Should a typhoid patient be isolated in a special ward? Undoubtedly whenever possible this measure should be carried out. In many hospitals in the ordinary incidence of the disease it seems almost impossible; there is neither the ward accommodation nor a sufficient number of nurses to carry it out. Yet we should endeavor to do it as far as possible. The typhoid fever patients should be kept together in one part of a large ward or as far as possible in one part of the hospital. Every effort should be made to have special nurses and orderlies waiting on these patients alone. The question of a separate kitchen and food supply is also important. The diet for the typhoid patients is so simple and the dishes they require are so few that it is not a difficult matter to keep these separate. One rule should be absolutely enforced—the nurses and orderlies who are waiting on the typhoid-fever patients should have nothing to do with the preparation of the food for the other patients. Too often a nurse goes directly from waiting on a patient with typhoid fever to prepare food for the other patients in the ward, or an orderly may be handling the ice for the water-cooler.

b. Physicians.—It should not be necessary to point out the necessity for care on their part, both for their own sakes and for that of the patients. It requires constant attention always to remember to wash the hands after examining a patient with typhoid fever before going on to a patient with another disease, and yet undoubtedly there is the risk of infection if this is not done. For both physicians and medical students the need of care in the examination of the urine and stools from typhoid fever patients should be kept in mind.

c. Nurses.—The frequent occurrence of typhoid fever among nurses suggests that the care usually taken is not sufficient. To reduce or prevent this infection is difficult. Careful instruction as to the danger, strict regulations as to disinfection, and thorough oversight to ensure that these regulations are carried out, are all important. One difficulty is that the nurses often have too much to do. This is especially apt to be the case with the night nurses. Disinfection after each handling of a typhoid-fever patient means time, and this the nurse on a heavy ward may not seem to be able to spare. Whenever possible the nurses attending to the typhoid patients should do that alone. The wearing of rubber gloves should reduce the danger of infection. They could be used for the greater part of the work done, especially that connected with the changing of clothing, handling of bed pans, urinals, etc. In giving sponge or tub baths their use is not so important.

d. Orderlies.—It has always been a surprise in the Johns Hopkins Hospital that so few of the orderlies contracted typhoid fever. In any hospital they must always be regarded as likely means of carrying infection; being usually overworked, apt to be careless in any case and thoughtless about danger, they require constant watching. Even with stringent regulations, it is hard to be sure that orders are obeyed. There is no doubt that as much as possible of the waiting on typhoid-fever patients should be done by the nurses. Strict oversight and great care in the handling of the ward utensils are most essential points.

e. Ward Utensils.—These should be rigidly isolated. The bed pans, enema nozzles and urinals should be kept for the use of the typhoid-fever patients only. The thorough disinfection of these is most important. Edsall mentions in the article already noted an apparatus devised by Dr. C. P. Noble in which the bed pans can be boiled. The urinals and nozzles should be boiled and kept in an antiseptic solution. The same rules as to isolation and disinfection should apply to the thermometers. These measures are important, not only for the protection of other patients, but also for that of the nurses and orderlies.

f. Food.—No one who is handling typhoid-fever patients should be allowed to have anything to do with the food supply for the other patients. In almost all hospitals this is difficult to carry out, but it should be done. If a patient with smallpox was concerned, there would be no doubt of this being carried out, but we are accustomed to typhoid fever. The easy possibility of food infection was well shown by an instance which came under my observation. A patient who had a chronic cystitis due to the typhoid bacillus, anxious to be of some help in the ward, was found to have been giving water, into which he had put pieces of ice, to other patients. Luckily no infection followed.

g. Flies.—Here is a problem difficult of solution. The easiest way is to keep the flies from the typhoid-fever patient. By screens the number in a ward can be kept to a minimum, and by keeping netting over the patient the chances of the flies in the ward getting at him are reduced. Even with screens it is difficult to keep the flies away when necessary things are being done. Care should be taken to prevent flies from lighting on the dejecta before these are sterilized, and the bed pans should be covered, especially as they are sometimes left standing for some time before being sterilized.

h. Disinfection of Stools and Urine.—The methods for this need not be discussed here. The important thing is to see that they are carried out. For this, constant oversight is necessary, especially of the orderlies.

PRIVATE PRACTICE.

Here the problem of prevention of infection may be much easier or almost impossible of solution. In a wealthy home, with two trained nurses, there is not very great difficulty. The rules of the hospital can be carried out rigidly. But in the homes of the poor it is quite another matter. The mother of a large family may have to nurse the patient and attend to the rest of the family. Take some of the conditions one finds. The patient is nursed by one of the family, possibly well-meaning but ignorant; flies are numerous, both about the patient and on the food; the urine and feces are perhaps thrown out on the ground in the country or in the ordinary privy, the flies being there also. Who can feel any certainty of being able to prevent infection under such circumstances?

Still, much may be done. The danger of infection should be emphasized every day, and, if possible, those waiting on the patient prevented from preparing the food for the family. Specific written directions as to the rules of isolation and disinfection should be given. These should be put under the headings: (1) for the attendants, (2) for the food utensils, (3) for the clothing, sheets, bed pans, etc., and (4) for the urine and stools. The physician should himself demonstrate how the

dejecta are to be handled. It should be possible to prevent them from being thrown out on the ground or into an open privy, whether thoroughly disinfected or not. The possibility of infection of a water supply must always be remembered. To keep flies away it is usually possible to have the room screened. If wire screens can not be obtained, cheese-cloth can be put over part of the window to hinder the entrance of flies. Netting can also be used over the patient.

PRECAUTIONS IN CONVALESCENCE.

It is the duty of every man who treats patients with typhoid fever to take every means in his power to be sure before the patients are discharged that they are not typhoid "carriers." This is easy as regards the urine, but very difficult as regards the stools. To every patient urotropin should be given during the course and in convalescence. By doing this we can be reasonably sure that the urine is free of bacilli, and by giving large doses (75 gr. per diem) we may do much to destroy them in the gall bladder. In doing this we should watch constantly to avoid the production of hematuria.

Certainty as to the stools being free of bacilli is difficult to attain. Even in hospitals this may seem impossible. It is a large question and perhaps will have to be a matter of inspection by the state. To hope for this may seem utopian and yet it should come. It would be done in case of plague, but that is an unfamiliar story to us: typhoid fever is an every-day matter and familiarity brings carelessness.

There is no question of the difficulties that meet us when we endeavor to make sure that no other individual stands in any danger of infection from our typhoid-fever patients. It is so easy to rest content with bringing the patient through the attack; that is something which shows and there is no applause for the prevention of cases of typhoid fever which might have been. Yet if the statistics of any community show a decreasing incidence of the disease, every practitioner in it who has done his part to bring this about can have the consciousness that to him belongs some of the credit. Must not this be the highest reward for many of the triumphs of preventive medicine?

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DISCUSSION.

DR. ALEXANDER LAMBERT, New York: Feeding experiments were carried out under my care a year ago on a number of patients. In giving a diet absolutely free of milk, in which sugar was abundant, a remarkable point was the absolute lack of meteorism; the abdomens were excavated instead of swollen, the delirium diminished rapidly, the patients were clear-headed, required no medication and lost weight to a small extent. One boy went two and a half weeks with a loss of about five pounds in weight. Dr. McCrae's stand as to diet is the stand of the famous old woman who said that she was always open to conviction, but she would like to meet any one who could convince her. I think that if Dr. McCrae will leave out the milk he will be convinced that there is a better diet and a most generous one, of rice, broth, sugar, butter and a few crackers; it will open his eyes to the possibilities of a diminution in the toxicity of typhoid fever, a diminution of the delirium and meteorism in the majority of patients.

DR. H. B. WEAVER, Asheville, N. C.: It is said that there are lies, exaggerated lies, and statistics. I should hate to give my statistics in reference to typhoid, but my experience has given me some positive ideas regarding the treatment of typhoid with what I call a mixed diet. My plan of treatment is to begin the case with a mild laxative, of calomel, not with the German rule of heroic doses of calomel. After the alimentary canal is cleared then I begin with plenty of water on the inside, and when hyperpyrexia arrives with plenty of water on the outside. As to the diet, I give enough milk, if well borne, with plenty of chicken broth with rice cooked in it, and a few crackers now and then. This will suffice for all cases of typhoid fever. In reference to the bowels, I never give a purgative, but rely on salt solution enemas, Nature's remedy. How do we know whether the system has enough chlorid of sodium remaining to sustain the vitality? It is said that all normally healthy persons excrete from three to four drams of chlorid of sodium daily; may it not be possible that we fail to give enough chlorid of sodium to patients during these four weeks of typhoid fever? Therefore, I mix a little salt with chicken soup and broths, which the patients take with avidity. It seems to me that they relish that food and it keeps them along to convalescence. I let drugs alone, as a rule; pay no attention to the coal-tar remedies, but rely on cold water on the outside and plenty of good water on the inside, with a mixed diet. This treatment will get a majority of patients through successfully.

DR. E. P. JOSLIN, Boston: There is one point in this excellent paper to which I must take exception, and that is the recommendation for drinking excessive quantities of water and the excretion of immense quantities of urine in the twenty-four hours. Such a procedure puts a great demand on the individual. If we allow our patients eight out of the twenty-four hours for sleep, a little calculation will show that to void six quarts of urine in the remaining sixteen waking hours the bladder would have to be emptied or a glass of liquid drunk every twenty minutes.

DR. W. S. THAYER, Baltimore: The importance of early and complete cooperation between physician and surgeon is, after all, a point which relates not only to the complications of typhoid fever, and especially to suspected cases of the bowel, but to practice in general. What one might say regarding perforation in typhoid, one might also say as well with regard to appendicitis. It is important to remember that whenever in such cases there is any thought of surgical interference we should call in our friend, the surgeon, at once. The first impulse of most conscientious physicians and surgeons is to avoid operation unless it is absolutely necessary, and each new man that sees the case passes through this period. I recall vividly a case in point. When I was a resident in a hospital, about fourteen years ago, at a time when early operation for appendicitis was not so common as it is to-day, I was called early one morning to see a nurse. She had an acute appendicitis. I hesitated, however, to send for the surgeon immediately, thinking that she might be better within a few hours. Two hours later I sent for the surgeon. He thought that early operation would be wise, but did not want to hurry and put it off for a few hours more. But in a few hours our minds were made up and the patient was prepared for the operation, when my chief came in and, in turn, said, "Let's wait a little while," and put it off until the afternoon. In the afternoon all were agreed as to the advisability of immediate operation, when the surgeon-in-chief arrived. The surgeon-in-chief, by a like conservative impulse, said, "Let's wait until to-morrow morning." On the following morning when the patient came to operation there was a general peritonitis, and before it was over she had three grave operations and was at the point of death. She is still living, but her life was nearly sacrificed because four conscientious men, seeing her one after another, all wanted to wait a little while; any one, had he seen the case when I first saw it, would have advised operation within an hour or two. The physician should always summon his surgical colleague the moment he suspects the eventual necessity of an operation. Such a procedure saves many lives.

DR. LAWRENCE LITCHFIELD, Pittsburg: I heartily endorse, in the main, Dr. McCrae's paper. As to calcium lactate, I even go so far as to give it hypodermically in severe cases. I have seen three cases in which large doses given hypodermically, with normal salt solution, seemed to bring very good results. I can not pass over his objection to initial purging. What he says is very suggestive, but I have the histories of

over a thousand cases in which initial purging has been the rule and in which troublesome diarrheas have occurred very rarely. As to what has been said about not purging at all, I gave 150 consecutive patients daily morning doses of sulphate of magnesium, and the mortality was as low as any I ever had, and the hemorrhages and perforations were below the average. Of course, 150 cases are far too few to base conclusions on, but they are enough to show that a laxative is not a deadly thing in typhoid fever. If Dr. Ewing's position is correct, that the nitrogenous waste in typhoid fever is not from the toxins of the invading bacteria, but from autointoxication, largely from the digestive tract, it seems that a great deal might be said in favor, not only of the initial purge, but even of laxatives during the course of the disease. In speaking of flies, Dr. McCrea mentioned keeping them away from the patient and the food, but most important of all is to use covered bed-pans and to keep the stools away from the flies. One point as to the treatment of perforation: On account of difference in the absorptive power in different parts of the peritoneal cavity, as soon as there is a suspicion of perforation the head of the bed should be raised and kept elevated, so that there may be drainage into the pelvic cavity and not the upper part of the peritoneal cavity, which is more vulnerable. I should think it would be dangerous to roll a patient about in the search for movable areas of dulness with the effect of spreading the infection over the entire peritoneal cavity, if a leak should have occurred. As to the large amounts of water, I agree with Dr. Joslin. Of course, typhoid patients should have enough water. You remember Dr. Thayer's suggestive paper some years ago on "The Relation of Typhoid Fever to Arteriosclerosis." I think that we have all seen protracted cases of typhoid in which the radials became palpable under our very fingers. If this is true, would not the overloading of the system with so much water necessitating in extreme cases as practiced in Cleveland, the elimination of four to eight quarts during the twenty-four hours, put an unnecessary and excessive strain on the heart and favor the development of arteriosclerosis?

DR. HENRY B. FAVILL, Chicago: So far as I know there are only two subjects on which I am unreasonable. One is automobile scorchers and the other lead and opium in hemorrhage. There is no question about the authority, as far as authority goes, on this question of lead and opium, particularly opium, in typhoid hemorrhage. So far as my experience leads me to a judgment, it is a fact that the locking up of the bowel after hemorrhage, with opium, to which the lead is so far as it goes an additional objection, is a pernicious practice not justified by either experience or theory. Three objections exist in my mind: First, it increases the meteorism; second, it tends to obstruct the excretions; third, it frequently locks in the colon a mass of blood which undergoes decomposition to such a degree that it is not to be compared with anything we meet clinically. It is a dreadful condition, hypothetically and, I think, practically, to be superinduced in a serious infective disease.

DR. JOHN A. WITHERSPOON, Nashville, Tenn.: I feel much like the boy who wrote the essay on snakes in Ireland and said, "There are no snakes in Ireland." There is no treatment of typhoid fever. I agree with Dr. McCrae when he says, let each case be its individual lesson to us. That is all right, but in his paper he did not, to my mind, carry out the idea with which he started. I heartily agree with Dr. Lambert when he condemns the use of milk, especially sweet milk, in typhoid. I believe that we would have very little meteorism, that we would have very little intestinal disturbance, if we properly fed our patients. Sweet milk has been, in my experience, one of the most universal disturbers both of stomach and intestines of any nourishment I have seen used in typhoid fever; therefore, I have long since ceased to use it, because every case I have demands a mode of treatment to get rid of symptoms directly produced, in my judgment, by such treatment. I believe that Dr. McCrae, who gave us an elegant way of relieving the distended stomach with the stomach tube, if he feeds his patients properly, will rarely find any necessity for using the stomach tube. You will seldom find much gas and diarrhea if you will avoid disturbing the nutrition by improper feeding of your patients. Another point on which I could not agree with Dr. McCrae is the use of hexamethylenamin to kill the bacillus in the gall bladder and elsewhere. I do not believe that it would be possible for hexamethylenamin to destroy the bacteria or bacillus typhus in the gall bladder unless you carried the treatment to such an extent that in the preparation of subjects you would practically have to prepare the dead subjects, as we would the cadaver, to kill the *Bacillus typhosus* with it. While I have had a little experience with hexamethylenamin, it has not given me the results it seems to have given Dr. McCrae. I believe in the management of typhoid fever; there can be no objection in the earliest part of the disease to the initial purge; it has been a universal practice, and I believe does aid in the future welfare of the case. Then as few drugs should be given as possible, and proper nutrition, which, in my judgment, should be egg albumins, broths with rice, etc., in buttermilk, and things of that sort will keep down the necessity for too many drugs. The fewer drugs used in this disease the fewer will be the complications. I endorse everything else in the paper, except excessive drinking of water. I do not believe that it is sensible to deluge the stomach of a patient with water or anything else.

DR. THOMAS MCCRAE, Baltimore: My experience has been that the large amounts of urine passed do not give any distress to the patients. The ordinary typhoid patient is wakened every three hours in the night to take nourishment and can void at that time. I agree with what Dr. Litchfield said about the advantage of the administration of calcium lactate hypodermically in some cases. In regard to the danger of overloading the circulation with water, I have never seen any evidence of it. What is it that leads to the changes in the arteries? Is it not the presence of toxins? The more we can reduce the toxemia, which you will grant hydrotherapy does, the more we reduce the danger to the blood vessels. Clinically I have not seen any evidence of harm to the circulation. Dr. Witherspoon implied that the patients in whom I had seen distention of the stomach were on a milk diet, but, on the contrary, the majority of them were being given predigested foods, beef tea and broths. Regarding the point about hexamethylenamin not having any effect on typhoid bacilli, it seems to me that if one point has been established it is that hexamethylenamin does kill out the bacteria in the urine. I think that this has been too definitely proved for us to have any doubt of it. In regard to the use of adrenalin in hemorrhage, I have never been able to persuade myself that it is of value either theoretically or in practical results. As to the amount of hexamethylenamin I do not think we know as yet; I mentioned 75 grains a day and perhaps we might go higher, but we have not had enough material as yet to enable us to pass final judgment. This disease has so many phases and such varied symptoms that it is natural we should have various ideas about treatment. The consoling thing is that so many of the patients recover under so many different treatments. It shows that all the truth does not rest in one method. We are all agreed, however, as to the importance of preventing infection from our patients.

Hydrogen Dioxid Test for Blood in Urine.—V. Morinelli, of Buenos Aires, states that hydrogen dioxid is a more sensitive reagent for occult blood than the guaiacum-turpentine test, and even than the spectroscope. All that is necessary is to add a few drops of a concentrated solution of hydrogen dioxid to 10 or 20 c.c. urine in a test-tube, without stirring or heating. If there is any blood or hemoglobin in the fluid, bubbles will form in a few seconds. In his communication to the *Semana Medica*, July 23, 1908, he states that dubious spots on wood or on the ground or elsewhere give the reaction when the hydrogen dioxid is dropped on the suspected spot, even when it is impossible to prepare the material for application of any other test. He says that neither albumin, glucose, mucus or the bile pigments interfere with the reaction. It is positive only when it occurs in less than a minute, without heating or stirring.

THE PRESCRIBING OF PROPRIETARIES, ESPECIALLY PROPRIETARY MIXTURES.

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The manufacturers of medicinal preparations that ought not to be used are adepts in the twisting of language. When the fight against the use of nostrums was renewed some fifteen or twenty years ago, they tried to confuse "nostrums," *i. e.*, secret remedies, with "proprietaries," *i. e.*, preparations legally or by custom private property; and even the trustees of the American Medical Association were, for a time, thus deceived. Just as this confusion is being cleared up, it does not seem wise for those physicians and pharmacists who desire to bring about the scientific use of medicines, to introduce it again by denunciations launched indiscriminately against two or three different classes of preparations.

Hence, at a recent meeting at which this subject was discussed, I emphasized again the distinction for which I have been fighting, lo, these twenty years. I protested against the unfairness of describing as "nostrum-users" physicians who prescribed proprietary medicines of known composition. This, however, does not warrant the misapplication of my remarks and their perversion into apparent approval of what I have always condemned —namely, the routine use of ready-made mixtures, whether proprietary or not.

The chief objection to these, as I have repeatedly pointed out, does not consist in the fact that they are proprietary, but in the fact that they are ready-made. As I have said before, and frequently, "one mixture can no more fit the pathologic conditions in every patient, than one coat can fit the curves of every back." Even when the same ingredients are associated, which is not always wise, the proportions are usually to be varied to suit the different indications—not only of different cases, but of the same case at different times. In other words, a ready-made mixture is usually, as regards the individual patient, a misfit. Either it contains unnecessary ingredients, or it omits a necessary ingredient, or the doses of the respective ingredients are unbalanced; there is too much of one, too little of another, and proper increase or decrease of dose with the progress of the case is impracticable.

These considerations apply as forcibly to a Pharmacopeial or National Formulary mixture as to any other.

Nevertheless the U. S. Pharmacopeial and N. F. formulas for mixtures are capable of considerable scientific usefulness. They are lessons in therapeutic and pharmaceutic association. They teach by example how incompatibilities may be avoided or overcome, and how medicines may be suitably flavored and colored—a matter of some practical importance, for a palatable and sightly potion will be swallowed when a nauseous and nasty looking dose will be rejected.

For this reason the National Formulary should give original formulas and not imitate proprietary preparations, many of which are highly unscientific. The "elixir digestivum comp." is a case in point. There is no advantage in mere substitution of one unscientific preparation for another, even if the N. F. mixture be equally silly and objectionable with its exemplar.

Basham's mixture (Liquor ferri et ammonii acetatis) and Dover's powder (Pulvis ipecacuanhæ et opii) are classics. Yet it is probable that the proportions in even these could be varied in individual cases with benefit to patients.

If, however, the U. S. P. and the N. F. would publish *skeleton formulas*, giving a range of quantities in which certain medicinal ingredients can eligibly be associated—thus indicating the necessary pharmaceutic expedients, but leaving the exact dosage to be ordered by the prescriber for the needs of the individual patient at the particular time—we should have the advantages, without the disadvantages, of such standard mixtures.

Three things would be necessary:

1. A standard (i. e., average) formula, to be dispensed on name without specification of quantities.

2. The indication of an optional range of variations possible, without destroying the pharmaceutic value of the formula.

3. A brief statement of the pharmaceutic necessities of the particular mixture, as a guide to the proportioning of doses.

For example, let me take the formula of a preparation not in the Pharmacopeia or N. F., which I have employed very much in rheumatic cases during many years, and have repeatedly published. It is known in the house pharmacopeias of the Jefferson Medical College Hospital, the Philadelphia Polyclinic Hospital and the Philadelphia General Hospital as Mistura ferri salicylata (Salicylated iron mixture). A standard mixture is dispensed under this title which contains 0.5 gm. of natural sodium salicylate and 0.5 c.c. of tincture of ferric chlorid to the teaspoonful, estimated at 4 c.c. Sometimes in prescribing it one wishes to increase or to diminish the iron relatively to the sodium salicylate, or vice versa. We know that this can easily be done within a range of 30 per cent. In order to prevent the precipitation of iron salicylate, two pharmaceutic expedients are necessary—the use of a slightly acid ammonium citrate solution in the vehicle (approximately half, i. e., 2 c.c. in the 4 c.c. dose), and the addition of the iron last, drop by drop, with continuous stirring, up to the required quantity. To permit any considerable increase in the iron there must be proportional increase in the citric acid content. It is also better made when a few drops of glycerin are used in each dose, and it can be flavored appropriately with a natural methyl salicylate. The standard formula is the result of experiment as to the best pharmaceutic proportions, and in this the active ingredients are as stated, with suitable quantities of glycerin, solution of ammonium citrate and oil of birch or oil of wintergreen. When no other direction is given this is dispensed.

It can be varied in two ways.

1. The best way is to write the quantities of active ingredients in full, and of the vehicles, flavor, etc., in blank, or with a *q. s.* Thus:

R.	gm. or c.c.		
Sodium salicylate (true)	2		gr. xxx
Tincture of ferric chlorid	2	20	m. xxxvi
Oil of wintergreen	(q. s.)		
Glycerin	(q. s.)	or	
Citric acid	(q. s.)		
Solution of ammonium citrate (B. P.)	q. s. ad 32		f℥i

2. The easiest way is to write:

R. Salicylated iron mixture with 10 per cent. increase of iron, 32 c.c.

Similarly, if the U. S. Pharmacopeia should state regarding Basham's mixture the range within which the proportions of tincture of chlorid of iron and solution

of ammonium acetate could be varied, the prescriber could so order, leaving the pharmacist to adjust the acetic acid to the requirements of the prescription.

So, too, the National Formulary could provide that, for example, its elixir of iron, quinin and strychnin phosphate should contain the present standard quantities of these three ingredients when the physician makes no specifications of quantities; and, when specified, the exact quantity of any one or all of them that the prescriber writes for. Thus a modified prescription might read:

℞ Elix. ferri (gr. i), quin. (gr. ss) et strych. phos. (gr. 1/120)
[These quantities to dose.] ℥iv
Sig.: One teaspoonful in water, t. d. p. c.

Or any other variation desired could be indicated similarly.

This would be more work for the prescriber as well as for the dispenser, but it would check the tendency to routine, and thus the resort to proprietaries; for thereby we get away from the ready-made formula which is the real ethical objection to proprietary mixtures, otherwise unobjectionable; and which affects N. F. preparations equally. If, however, N. F. preparations become adjustable, while proprietaries remain rigid, the superiority of the former is at once evident.

There are many other objections to the use of proprietary mixtures, the principal three of which may be summarized as follow:

1. They are not subject to standard regulation and may arbitrarily be varied.

This is less pertinent now that the pure food and drug act requires a guarantee from the manufacturer, but is still valid to a degree.

2. They profess to some degree of secret excellence, some mysterious method of collocation, or perhaps of flavoring. Such pretences are usually false, and not to be encouraged when true.

3. Perhaps the most serious objection—and from the viewpoint of pure science it oversteps all others—is that proprietorship makes unbiased discussion and honest reports difficult. This applies not only to mixtures but to "controlled" drugs in general. Paid communications are so notorious and every manufacturer or vendor of a controlled medicine does so much to put forward the good side of the remedy and to keep in the background all facts against it, that even sincere and scientific reports are often regarded with undeserved suspicion and many clinicians are absolutely deterred from praising or even mentioning useful articles, because of such control. Abolition of proprietorship would advance science, and while it would drive out many useless preparations now much-vaunted, it would increase the use made of worthy ones and make it feasible to discuss them as impartially as we do quinin or mercury.

In addition, it is possible that controlled medicines may not conform to published descriptions or formulas. This, however, takes them into the category of criminal frauds, and has no connection with proprietorship or any other question we are here discussing. The dispensing of chalk for quinin by a thievish manufacturer or retailer does not affect the legitimacy of the prescription of quinin; and the similar predatory sale or dispensing of thyroid extract or brickdust for kidney substance does not affect the legitimacy of the use of kidney substance.

There is another kind of proprietorship, however, that I accept. It is a worthy one, and the only worthy one. When it is known that a certain official or unofficial drug varies much in quality as found in the market, and that certain manufacturers or dispensers put forth a trustworthy product, then I do not hesitate to specify the personal or firm name of such a manufacturer or dispenser. I know, for example, that A. and B. and C. are careful to get the best digitalis, or ergot, or belladonna and to prepare it properly. I know that X. and Y. and Z. get the cheapest stuff they can; or sail as close as possible in every way to the limits of the law; or are generally undependable. I do not hesitate to specify A's or B's or C's digitalis or ergot or belladonna, in order to avoid getting X's or Y's or Z's.

This is not a mere possibility or fancy picture; it is a sad reality. Many patients have been suffered to die through the administration of X's or Y's or Z's inferior digitalis; while ergot and cactus are notoriously variable, and some physicians even discard cactus altogether because of the great difficulty of getting a preparation that can be depended on. The same remarks apply to dispensing pharmacists. I know that E. and F. and G. are careful alike in purchasing and in compounding, to get the best and do the best. I know that P. and D. and Q. are careful to get the cheapest drugs, or are slovenly in putting up prescriptions. I tell patients to go to E. or F. or G. and to keep away from P. and D. and Q. This, and this only, is the proprietorship—proprietorship in individual good name of person, firm or corporation, that I defend and specify; and any application of any alleged remarks of mine in any other sense, is false and misleading.

There is another form of proprietorship in which I am forced unwillingly to acquiesce, although I do not like it. It is the monopoly of certain non-secret products given by patent and trademark. This is wrong; but so long as our United States laws remain as they are, the wrong can not be remedied.

If we who are striving for the correction of old errors are not careful to keep the question clear, we can not expect that those whose interest it is to confuse matters will refrain from doing all they can to "darken counsel by words void of meaning."

Let me, therefore, summarize:

1. Ready-made mixtures of rigid formula, secret or known, proprietary or public, are objectionable.

2. The National Formulary and the U. S. Pharmacopeia should make all formulas of mixtures optionally elastic.

3. Such proprietorship as is expressed in the name of an individual pharmacist or dispensing or manufacturing firm or corporation known to be generally careful and trustworthy, or to have devoted special attention to certain official or unofficial preparations of fully known character, is legitimate; and the names of such persons, firms or corporations may, with the highest ethical propriety, be specified in prescriptions.

4. Preparations tainted with *secrecy of any kind* should be avoided absolutely.

5. Known preparations that can be obtained of one manufacturer only and which are physically and chemically what they purport to be, may be prescribed without impropriety, however much we may and do deprecate that fault in our laws which permits such monopoly in medicinal agents. *The law should be so altered as to abolish this form of proprietorship in medicines.*

In the foregoing discussion and summary, I have simply repeated, in somewhat different form, propositions that I have long maintained and the theoretic

grounds of which were set forth in a previous paper,[1] read at the Boston session of the American Medical Association. I have been moved to repeat myself by the importance of the subject; by the unfortunate tendency of some new converts to go to extremes that tend to bring back all the old confusion; and by the misleading use to which a garbled extract from my own plea for conservatism has been put.

The forces of right and of science must not suffer themselves to be divided. The American Medical Association through THE JOURNAL and through the Council on Pharmacy and Chemistry, has well nigh accomplished what seemed at one time to be a hopeless task. No one will claim that the Council is infallible; all must admit its ability, its sincerity, its integrity, and its desire to be just. It is pursuing the right course and we can afford to await developments. Above all we must hold up its hands. We must likewise avoid disarranging its plan of campaign by ill-devised sorties at the wrong time and place and against the wrong persons.

A NEW BLOODLESS METHOD OF AMPUTATING THE ANUS AND RECTUM.

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MANILA, P. I.

The following operation which I have devised has been used many times with excellent results. It is applicable to all cases of prolapse of the anus and rectum in which amputation is advisable. It is of value in (1) prolapse of the anus and rectum combined with ulcer, when the bowel is thickened or indurated; (2) irreducible gangrenous or sloughing prolapse; (3) organic stricture; (4) adhesions preventing reduction; (5) neoplasms involving the entire thickness of the intestinal wall, and (6) in procidentia due to organic stricture, in which the stricture has reached the lowest point of the prolapse, the whole may be excised, and thus the stricture and procidentia cured at the same time. It is not intended that this operation take the place of sigmoidopexy or colopexy.

PREPARATION OF THE PATIENT.

In this, as in other operations on the rectum and anus, time spent in the proper preparation of the patient will add much to the success of the operation and to the patient's comfort subsequent to the operation. A few days' rest on the part of the patient is advisable before such an operation, when possible. He should remain on a very simple and moderate diet, the bowels being kept quite free, and he should drink freely of water. Thirty-six hours before operation two ounces of castor oil should be given. The lower bowel should be well washed out the night before and no enema given on the morning of operation.

TECHNIC OF THE OPERATION.

The patient is placed in the lithotomy position, with the buttocks well elevated. The sphincter is dilated and the bowel pulled well down by means of three forceps which are applied to the intestine. A little manipulation will enable one to work down all the redundant bowel. The rectum is packed with a long strip of gauze, about 6 cm. (2¼ in.) in width. The elevation of the buttocks allows the small intestine to gravitate back in the pelvis, and when the prolapse consists of more than three inches of bowel or there exists an archocele this step is important. If the small intestine be between the two cylinders of the prolapsed bowel it can easily be palpated between the thumb and finger and pushed up.

The protruded bowel is again well washed with soap and water, mercuric chlorid, 1 to 2,000, and sterile water. Two long Kocher or Ochsner mouse-toothed forceps are applied to the anterior wall of the prolapsed bowel in its long axis, one blade in the rectum and the other above, from the folded margin up to within 3 mm. (⅛ in.) of the skin surface, including both cylinders of the gut. These forceps are applied parallel about 1 cm. (⅜ in.) apart. Both cylinders of the bowel (all the tissue grasped by the forceps) are divided between them up to within 2 mm. (1/16 in.) of the skin margin. A catgut suture is then placed just beyond the toe of the right pair of forceps.

A hemorrhoidal clamp is applied beyond the toe of the pair of forceps to the left, the toe of the clamp pointing to the operator's left and grasping from 1.5 to 2 cm. (½ to ¾ in.) of the circumference of both folds of intestine, close to but not including the skin. The forceps are removed and the portion of bowel embraced in the clamp is cut away by shears about 3 mm. (⅛ in.) from the clamp and the remaining tissue is seared by an electric soldering iron or other cautery, after first protecting the anus and surrounding skin with a shield made of asbestos cardboard or sheet lead. The tissue embraced between the blades of the clamp is seized by the thumb and index finger of the left hand, the clamp removed and the two layers of intestine, now seared and adherent, are sewn together by a lock stitch, using No. 2 chromic catgut. The suture should be sufficiently long to continue without interruption all the way round the margin of the anus, and the end after the first knot left long. A long straight round needle should be used. The assistant holds the suture taut while the operator again applies the clamp and cautery, after which the suturing is again resumed and the process continued until the entire circumference of the bowel has been traversed, the two ends of the catgut then being tied.

No particular attention is paid to the vessels of the mesentery. The sutures may be applied before the removal of the clamp and immediately tightened on its removal, or on the removal of the clamp instead of seizing the tissues with the thumb and forefinger they may be caught with one or two mouse-toothed hemostatic forceps and the sutures applied and the forceps removed. I prefer the first mentioned method. The entire operation can be completed in from fifteen to twenty minutes or less.

If the prolapsed bowel is more than three inches in length care should be taken not to include a knuckle of the small intestine in applying the clamp. To avoid this accident, in addition to the measures spoken of in the foregoing, each bite of the cylinders of intestine should be examined between the thumb and index finger before it is grasped by the clamp. The presence of small intestine or omentum is easily detected and one meets with no trouble in crowding it upward with the examining fingers if the patient is in the proper position. In these cases several hemostatic forceps will need to be applied in turn when making the first or longitudinal incision. After the operation is completed the gauze is removed from the rectum.

1. Cohen, S. S.: "The Limits of Proprietorship in Materia Medica," THE JOURNAL, 1907, xlviii, p. 195.

The dressing consists of sterilized vaselin and a few squares of gauze held in place with a T bandage. No tube or other dressing is placed in the rectum. As a rule no pain is experienced; if there is any, one hypodermic injection of 14 mg. (1/5 gr.) morphin given as soon as the patient complains will be all that is required.

In these operations, as in hemorrhoid operations, burning the skin should be avoided. Such burns are extremely painful and the patient will often complain bitterly of them long after he is entirely well from the operation.

AFTER-TREATMENT.

The after-treatment consists of a limited quantity of liquid or light diet for seven days. An attempt was formerly made to confine the bowels by means of opium until the eighth day, when they were moved without pain. In several cases the bowels moved voluntarily on the second and third days without pain or subsequent trouble resulting therefrom. The bowels are now moved in all these cases on the third day, two ounces of castor oil being given. The patient is allowed up and about thereafter and the bowels made to move daily.

It is practically impossible to infect the peritoneal cavity by this method, not an inconsiderable advantage when operating in this region. There is no narrowing of the anal orifice. In cases in which this seems desirable three or four longitudinal scars, 3 mm. (⅛ in.) in width, of the mucous membrane of the gut, after the operation is completed, will accomplish this. In these cases the wound usually is thoroughly healed about the tenth day and the patients are discharged from the hospital fourteen days after operation.

THE RELATIVE MERITS OF THE OPERATIONS FOR HEMORRHOIDS.*

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Is there a mortality attached to any of the classical operations for hemorrhoids? Undoubtedly there is. A word of protest against the rather common statement, by surgeons at least, that the mortality of a given operation is "practically *nil*." However small, there is a definite mortality for any surgical procedure to be weighed in the balance with the risk to life if no operation is done.

With special reference to the mortality and the subsequent condition of the patient, I wish to direct attention to a consideration of the relative merits and demerits of the three well-recognized types of operation for hemorrhoids: (1) the ligature method, (2) the Whitehead operation, and (3) the clamp and cautery operation. They are too well known to require description.

THE LIGATURE METHOD.

The pathologic condition about the lower end of the rectum in hemorrhoids—dilated, elongated and tortuous veins, often filled with simple or infective thrombi—and the impossibility of securing an operative field even approximately free from bacteria, afford excellent grounds for anticipating an occasional serious postoperative complication which may and occasionally does result in death. The puncture of a needle or a snip of the scissors can readily carry the *Bacillus coli communis* (whose function as an infective agent in all parts of the body is being recognized more and more) or other pathogenic bacteria into a vein and produce an infectious thrombophlebitis with subsequent embolism and death. Granted a clean field, the same process may be set up, for the thrombi in the hemorrhoidal veins are frequently already infected, presumably with the *B. coli communis;* and, granted that the thrombi are simple non-infected clots, such an embolus may result seriously.

That these dangers are not purely theoretic ones I am convinced from having observed one fatal case of pyemia and a number of cases of simple embolism following this apparently simple operation in the hands of capable and clean operators. In the cases in which simple embolism has been observed the emboli fortunately have lodged in the veins of the leg, but they may just as readily find a more vital spot.

There is certainly a definite, though low, mortality for this operation in the best hands, and it should be discarded in favor of other procedures, provided they promise less risk to life.

THE WHITEHEAD OPERATION.

This is a most attractive method from the standpoint of the operator. It appeals to him as a more complete and exact surgical procedure in that it removes by nice dissection the entire pile-bearing area and leaves a neatly closed wound. There can be no doubt, however, but that the same possibilities for danger exist in this operation as have been pointed out for the ligature method with the same definite mortality as an immediate result.

The common objection to the operation is based on the severity of the hemorrhage in patients already more or less debilitated by loss of blood. Improperly performed, this is a valid objection, but properly carried out it does not hold. Severe hemorrhage is produced by dissecting up the mucous membrane containing the piles about the entire circumference of the rectum before applying the sutures. If the dissection is carried up beyond the level of the hemorrhoids at but one point and the mucous membrane is divided and immediately sutured to the skin edge, thus controlling hemorrhage at that point, and if this be carried out step by step completely around the rectum the loss of blood will be slight.

The ultimate results of this operation are excellent, as a rule, but they are by no means uniformly so. In a certain number of cases the patients develop stricture of the anus of greater or less severity, a most distressing condition. This results from the contraction of an annular cicatrix which it is impossible to avoid, for complete primary union practically never occurs. On the other hand, some of the patients have incontinence of feces from interference with the nerve supply of the sphincter. In either case the patient has made a poor exchange for his hemorrhoids.

The real objections, then, to this operation, which should far outweigh its operative nicety, are (1) the danger of simple or infective embolism, (2) the risk of stricture, and (3) the risk of incontinence.

THE CLAMP AND CAUTERY OPERATION.

If the details of this operation, as advocated by Ochsner, are strictly adhered to, it is, in my opinion, free from the objections pointed out for the ligature and

*Read before the Pittsburg Academy of Medicine, May 12, 1908.

Whitehead operations. The danger of infection is reduced to a minimum, since there is no wound of the mucous membrane, except that produced by the cautery, which destroys bacteria and at the same time seals lymphatics and blood vessels. The hemorrhoidal masses should all be caught and brought down before any of them are cauterized. If this is not done it is almost impossible, while bringing down other masses, to avoid tearing open a previously cauterized stump, thus inviting both hemorrhage and infection. The clamp should always be applied in the long axis of the bowel so that the resulting cicatrices are in its long axis instead of transverse. If applied transversely and there are many hemorrhoids we produce an annular cicatrix and the same conditions result as in the Whitehead operation with the same liability to stricture.

For the purpose of preventing hemorrhage and infection it is advisable to avoid cutting off the hemorrhoid after applying the clamp. If cut, an avenue of infection is opened up and some vessel thus divided may be overlooked in cauterizing. The entire mass should, instead, be slowly burned away with the cautery at a dull red heat. The hemorrhoids should be gently handled at all times lest a portion of clot be loosened up and find its way into the circulation. The bowels should be confined for three or four days following operation. When they are moved there is almost certain to be some slight tearing of cicatrices, but by this time Nature has had an opportunity to wall off the area securely with inflammatory exudate and thus protect against serious infection.

That any of these operations are efficient in removing the pathology present in hemorrhoids can not be disputed, and each of them finds favor with operators of unquestioned ability. While the clamp and cautery is probably the least attractive from a strictly operative standpoint, the arguments advanced in its favor and the results obtained with it appeal to me as indicating it to be the operation of choice in almost every case.

RANULA AND OTHER DISEASES OF THE SALIVARY GLANDULAR SYSTEM.*

THOMAS L. GILMER, M.D., D.D.S.
CHICAGO.

Ranula is a soft cystic tumor in the floor of the mouth, unilateral at first, but later, as the cyst enlarges, perhaps passing beyond the median line. The name "ranula" is only descriptive of appearance, having no significance otherwise.

Formerly ranula was, and is at present by some, supposed to be a cyst containing pent-up salivary gland secretions from stenosis of Wharton's or Rivini's ducts, as a result of inflammation in some part of the duct or its meatus; or from occlusion of the duct by an accumulation of salivary calculus.

Bland Sutton says: "There is at the present time a strong tendency to restrict the name 'ranula' to cysts arising in connection with ducts of the three sets of salivary glands opening into the mouth, and to designate them as submaxillary, sublingual and parotid ranulæ according to the gland affected." Continuing, he says: "In the majority of cases ranulæ are probably retention cysts due to obstruction of a duct. They are common in connection with the submaxillary and sublingual glands." Again, he says: "Occasionally the obstruction is caused by a calculus impacted in the orifice of a duct, but cases come under observation in which the duct is not completely obstructed, yet the fluid is retained." "It is reasonable to believe that ranulæ sometimes arise independently of obstruction to the main duct, and as in the case of so-called pancreatic ranulæ, observation supports the view that there is in all probability a pathologic cause apart from mere obstruction concerned in their production."

Garretson says: "Ranula is the analogue of a sebaceous tumor, being simply a cyst of retention, a collection, the result of the closure of a tube of outlet."

Marshall says: "Ranula is a term applied to retention cysts of the ducts of the submaxillary and sublingual glands (Wharton's and Rivini's ducts)." Again, he says: "A ranula is a collection of salivary fluid in the excretory duct of the salivary gland."

The International Text-Book of Surgery says, "A cyst due to distention of Wharton's duct is called a ranula."

Lippincott's Medical dictionary defines ranula as "a fluctuating semitransparent tumor under the tongue, resulting from accumulated saliva and mucus in the ducts of the sublingual gland or from the independent development of a cyst in the sublingual region."

Stengle says: "Ranulæ are formed by dilatation of the ducts of the small mucous glands." Also: "At times Ranula may be a cystic dilatation of a duct of the sublingual salivary gland or that of a submaxillary gland."

Eisendrath says: "Acute ranula appears suddenly while eating; cause, occlusion of Wharton's or duct of sublingual gland. Chronic, it is a cystic dilatation of the sublingual gland and is a retention cyst."

Von Bergmann says: "The sublingual salivary gland probably serves as the point of origin of the majority of these ranules."

The following is culled from Hippel:[1] "Before first half of 1800 all tumors of the floor of the mouth were called ranulæ." Hippel also says that Diemerbroeck was the first to offer the theory that ranula was due to retention of saliva in Wharton's duct through narrowing or closure of the duct. Dupuytren thought of the possibility of ranula being mucous gland cysts.

De Closmadeuc found that stenosis of Wharton's duct by a foreign body never produced ranula. Experiments by Claude Bernard, Ranvier and others of the day proved de Closmadeuc's statement to be correct.

Pauli and Tellaux named a condition of distended Wharton's duct which broke into the surrounding tissues thus constituting not a ranula but a ptyalocele. Neumann discovered ciliated epithelium, lining the wall of ranula and as the Bochdeleck duct was the only ciliated epithelium-lined gland in the floor of the mouth, then it must be the starting point of ranula.

The nature of ranulæ which have no cilia on their walls has been worked out by Imbert and Jeanbrau, Veau, Thomas and Guibe. They think that such ranulæ are embryonal remains of epithelial origin, either from mucous membrane of the duct, or parts of the sublingual salivary glands cut off from the main gland.

Suzanne and Hippel showed ranula to be of sublingual glandular origin, a primary interstitial chronic inflammation, the connective tissue formed compressing the ducts in the gland, a cyst being the result. The pressure causes atrophy of glandular tissue and a confluence of the lobules, usually into a unilocular cyst.

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Arch. f. klin. Chir. Bd. 55.

Kroiss demonstrated a connection between such a cyst and the sublingual gland. This origin best explains the development of the cyst backward and downward through the fibers of the mylohyoid muscle.

Morestin found parts of the sublingual gland normally in between the fibers of the muscle, also parts of it penetrating through the muscle. This, he believes, could easily explain the development of ranula under the chin. One case of ranula of this nature came under my observation at St. Luke's Hospital, Chicago, through the courtesy of Dr. John C. Hollister. The cyst could easily be observed both in the mouth and submentally.

Hippel sums up his conclusions thus:

1. Ranula is a retention cyst of the sublingual gland, also rarely of the incisive glands.

2. Ranulæ have their beginnings in the small ducts of the glands.

3. The exciting cause is a chronic interstitial inflammation of the gland, which leads to a stenosis of the smaller ducts.

4. It enlarges by retained secretions, later by proliferation, degeneration and desquamation of the epithelium of the ducts and by transudation from new-formed capillaries.

5. Secondarily the gland lobules distal to the stenosis die of pressure atrophy.

6. The submental and acute ranulæ are only variants of the usual ranula.

7. A radical operation must include removal of the cyst and the entire sublingual gland (for its cure).

8. In infrequent and exceptional cases cysts of the lingual duct or its ramifications present the clinical aspects of ranulæ.

I have seen a number of ranulæ, and formerly was of the opinion that they had their origin in Wharton's duct, or in the ducts of Rivini, but having found no cases of ranula on the floor of the mouth which prevented the passage of a probe throughout the entire length of Wharton's duct, and not having seen a case in which the sublingual or submaxillary gland enlarged or became painful on taking food, these observations led me to believe that the theory pretty generally held, that ranula is due to dilatation of Wharton's duct from stenosis or from plugging of the duct by foreign substances is fallacious. Again, I saw one case as a result of stenosis of Stenson's duct without the formation of a retention cyst, but with the formation of a ptyalocele, indicating that saliva will find exit in all cases, though there be complete stenosis of the duct. Also, I have seen numerous cases of stone in Wharton's duct, many times larger than the normal lumen of the duct, which seemingly in no wise inhibited the flow of the submaxillary gland fluid. The result of these observations led me to the conclusion that tumors of the nature of ranula in the floor of the mouth are either cystic degeneration of parts of the sublingual gland separated from the main organ, cysts originating in the gland itself, or cysts originating in the mucous glands in the floor of the mouth. The conclusions of Hippel regarding the origin of ranula are very convincing. I have seen but few cysts originating in Blandin-Nuhn gland, and these bear but slight resemblance to the larger cysts on the floor of the mouth. Those coming under my observation have been quite small and, from their situation under the tip of the tongue, resemble the tumor known as ranula, not in locality, but only in the fact that they are cysts lying under a thin layer of mucous membrane.

Specific infectious parotitis is the most common disease of the salivary glands, but is one which does not specially interest the stomatologist and therefore will not be presented.

Following operations on or injury or disease of the urinary tract or genital organs, acute inflammation of the parotid may follow which simulates infectious epidemic parotitis. This condition, however, is most commonly met in adults, and the tendency to suppuration is much greater than in the specific disease. So also there is an acute inflammation of the parotid of a similar but of even a more virulent nature generally resulting in suppuration, which is a metastatic involvement of the gland due to septic infective fevers. Parotitis is sometimes seen as a result of mercurial poisoning.

When operating on very sensitive dentine I have seen a few cases of functional disturbances, in the nature of a colic, due to spasm of the duct of Stenson, which gave rise to temporary non-inflammatory distention of the parotid, due to the damming up of the saliva in the gland, the saliva being rapidly secreted through the irritation caused by the excavation of the hypersensitive tooth structure and not voided owing to the spasm in the duct, causing much pain and distention of gland. After a comparatively short period, subsequent to the operation, the spasm subsides and with it the pain, likewise the enlargement.

I have seen two cases of acute inflammation of the parotid which could not be traced to any specific cause. The gland in both of these cases suddenly became swollen, painful and tender to pressure. Stenson's duct was patulous, the meatus of the duct was normal, and no stones or other obstruction could be detected. There was a moderate amount of the salivary fluid voided, but no pus could be expressed through the meatus. The gland was not more painful when the patient partook of food than at other times. The temperature was a trifle above normal. Both patients were women, the age of one being thirty-three years, the other fifty-two. A year previous to the attack in the elder woman there had been an appendicectomy; otherwise there had been no injury or surgical operations or ill health in either case. Under hot applications and saline cathartics the condition subsided in a few days. Eight years have elapsed since the attack in one case and four years in the other with no subsequent attacks. I regret that no microscopic examination of the secretions from the gland was made in either case. I am of the opinion that the condition was due to a catarrhal infection of the gland reaching the organ from the mouth, though the duct did not appear to participate in the inflammation.

Chronic inflammation resulting in enlargement and hardening of the glands is, with the exception of epidemic infectious parotitis, the most common disease of the salivary glands. I have seen a few such cases involving the submaxillary gland, but never any involving the parotid or sublingual. Cases have been reported, however, in which both of these glands were involved. This inflammatory condition is supposed to be an infection communicated to the gland from the mouth, ascending through the duct to the gland. The enlargement of the gland comes on very slowly and is not painful, therefore the patient will probably not consult a physician until its size causes some disfigurement. E. von Bergmann believes that most, if not all, salivary gland inflammations originate from infection passing to the gland from the mouth

Two typical cases of chronic inflammation of the salivary glands are reported by Dr. Frederick Kroiss.[2] In these cases the enlargement of the glands was slow, as it always is when chronicity is observed, as before mentioned. Pus was voided from the duct in one case; in the other it was evacuated by incision three weeks after it came under Dr. Kroiss's observation. In both of these cases the gland was removed and macroscopic observation showed it to be twice as large as normal, connective tissue much increased, consistency very much increased. No abscess was to be seen with the naked eye. Near the periphery lay a small yellowish white, easily crushed concretion, imbedded in the tissue. Microscopic examination showed the capsule and septæ eight times increased. The single gland lobules were widely separated and the connective tissue poor in nuclei. The parenchyma was replaced by fat; the small ducts of the gland were surrounded and infiltrated by leucocytes. Atrophy of the parenchyma was seen mostly near the main branches of the ducts, less at the periphery. The tissue in which the concretion lay showed no changes different from the rest. The ductus maximus was very much enlarged; near the caruncle were many patches of swollen cells, but in other spots no epithelium remained. The mass which the ducts contained was composed of the desquamated cells, combined with the secretions, together with many polymorphonuclear leucocytes. The main duct was throughout its length surrounded by a round-cell infiltration, even to the furthest ramifications, and filled with a slimy pus. The cell tubules were small, in many places wanting, their places being taken by connective tissue.

I have seen several cases of chronic inflammation of the submaxillary glands which tally very closely with these cases of Kroiss, but have also seen a few cases which in the later stages of the disease were similar, but the early history of preceding enlargement and induration of the gland was absent. It is possible that the enlargement of the gland had not been great and on this account had been unnoticed by the patient. I am of the opinion, however, that inflammation of the submaxillary gland may be due to an inflammation in the duct set up by rough stones in the duct, the inflammation having been communicated to the gland from the infected and inflamed area in the duct through continuity of tissue, or through pyogenic organisms ascending to the gland through the duct from its inflamed area. Two cases are here given to illustrate.

Patient.—A woman aged 33, first consulted me August, 1902. She had had periodically painful swelling of the left submaxillary gland for ten years.

Examination.—The condition present when I first saw her was great enlargement of the left submaxillary gland, with swelling along the line of Wharton's duct, the inflammation of the duct having extended to the floor of the mouth and tongue on the affected side, seriously interfering with swallowing.

Course of Disease.—On the third day there was a copious flow of pus from Wharton's duct when the gland was pressed on. With the discharge of pus the pain and swelling in the mouth subsided, the gland decreased in size, but remained somewhat enlarged and hardened; it was also tender to pressure. At more or less frequent intervals between June, 1902, and March, 1903, there were mild repetitions of the former attack; pus at these times could be expressed from the meatus of the duct. During one of these attacks, in seeking a cause for the condition, in passing my finger over the line of Wharton's duct I found about half-way between the meatus and the gland an enlargement, but was unable, owing to the swollen condition to determine positively by palpation whether the enlargement was due to a stone or whether it was an indurated enlargement of the duct. Because it was impossible at this time to introduce a sound into the duct on account of the pain inflicted, an exploring needle was passed through the overlying tissue and the wall of the duct. When the lumen of the duct was reached the needle came in contact with an obstruction, which, through the sensation communicated to the fingers, was easily recognized as a stone.

Operation and Description of Stone.—On March 3, 1903, the swelling having subsided, I cut down on the stone and removed it. The stone was of dark yellow color, fourteen mm. in length, five mm. in its greatest diameter and three mm. in its least diameter. It weighed dry eleven grains. Its surface was rough, with short, spinous processes all over it. These processes were imbedded in the wall of the duct, and its removal was made difficult thereby. Following the removal of the stone, the gland and duct became normal in size and consistency and remained so during the five years that have elapsed.

Subsequent History.—Four years later the opposite gland became enlarged and painful, and pus could be expressed from the meatus of the duct. A sound was easily passed in this duct. In about the same relative position as before I found another stone. It was removed and proved to be of the same nature as the first, but smaller. Nearly one year has elapsed since its removal, and at this time both gland and duct are in seemingly healthy condition.

By some these two cases would be classified under the head of chronic inflammation of the salivary glands, the stone found in the duct being considered only an incident in the progress of the disease, which supposedly originated in the gland as the result of disease in this organ. If this reasoning be correct, then in time there will be further manifestation of disease in both of these glands. In one of the cases reported by Kroiss there was, following the incision and evacuation of the pus, a normal condition of the gland and duct for a period of four years; then the gland again became involved in a similar attack. It was then removed with the findings indicated. The similarity between Kroiss's case and mine, even to the subsequent involvement of the opposite gland, is readily observed, except that there was no stone in the duct in his case, but a concretion was found in the gland. Indeed in most of the cases I have seen reported in which the gland was extirpated for the cure of this condition, concretions were found either in the gland or in its ductus maximus. A period of five years has elapsed with immunity for symptoms since removal of the first stone in my case; therefore it seems reasonable to conclude that the immediate cause of the gland involvement was the irritation of the rough stone. Certainly one would not have been justified in removal of the gland, as subsequent results have proven.

By some, stones in the ducts of the salivary glands are supposed to result from the calcium of the salivary fluid being deposited on foreign substances, including bacteria, which have entered the duct from the mouth, supplying a nidus about which the lime is built. The following quotation is made in reference to the origin of these lime depositions from Hektoen's English edition of Durck's General Pathologic Histology:

"Calcification often develops in dead portions of tissue or in masses of inspissated secretion. In this wise concretions are formed in the excretory ducts of salivary glands and of the pancreas, consisting of desquamated epithelium, amalgamated into a solid mass by the inspissated secretion."

2. Beitr. f. klin. Chir., xlvii, 470-530, 1905.

By this we may also account for stone-formation in the body of the gland as well as in the ductus maximus, and conclude that the concretions formed in the gland are merely incident to the disease which is destroying the parenchyma and stroma of the gland. It is well known that lime is deposited very rapidly and in great quantities on the lower incisor teeth and the buccal surface of the upper molars in some mouths. This shows that the saliva is highly charged with calcium salts in the mouths of such persons. If a foreign body enters the duct of Wharton, a nidus is afforded about which the lime will probably be deposited more or less rapidly according as the fluid contains more or less lime. There are doubtless two sources from which stones in the ducts may have their origin; that is, the deposition on foreign bodies in the duct, and depositions in the gland itself, the stones thus formed having been extruded from the gland after formation. There is one class of stone which always evidently has its origin in the gland. Reference is had to those cases in which large numbers of very small calcifications are extruded from the meatus of the duct. One such patient, a little girl ten years of age, came to my clinic some years ago. The meager history obtainable indicated that the left submaxillary gland periodically enlarged and following these enlargements small concretions were passed into the mouth. When I saw the child the gland was enlarged and slightly tender to pressure. On stripping the duct toward its meatus a number of small spherical concretions of light yellow color, about the size of a mustard seed, were extruded. Subsequent history can not be given, since the patient did not again come under my observation. Some of the stones of the larger class which I have removed have been gravish in color, quite smooth and hard, the surface marked irregularly by shallow depressed lines. Such concretions remain indefinitely in the ducts without inconvenience, while those with rough surfaces irritate the ducts and in some instances cause suppuration. The latter are more friable and are liable to breakage on removal.

There can be no doubt that stones are found in other salivary ducts than Wharton's, for we have good authority that such is the case; but that stones must be rare in either Rivini's ducts or Stenson's ducts is quite evident, since they are so infrequently reported. Those found in my practice have invariably been in the duct of Wharton.

In 1892 Mikulicz first described a disease which was manifested by a symmetrical swelling of the salivary or lachrymal glands, or both. Later Kümmel, Hallenhoff, Osler and others have reported cases. It is a disease of the adult and known as Mikulicz's disease. The swelling of the glands is slow; the patient, having no inconvenience, may not apply for treatment until the glands become so enlarged as to be unsightly. The salivary glands may enlarge to the size of a hen's egg or larger; the lachrymals enlarge proportionally, causing considerable bulging at the outer canthus of the eye. Function being interfered with, the mouth and conjunctiva are uncomfortably dry. The salivary glands are hard, and lobulation may easily be made out. Osler reports a case of a young negress with Mikulicz's disease in which all the salivary and both lachrymal glands and the spleen were involved. The lymphatics generally were enlarged, especially in the posterior cervical triangle; some of the mucous glands in the mouth were enlarged and the tonsils were slightly swollen.

In 1905 Max von Brunner classified the thirty cases of Mikulicz's disease which had then been reported. In ten of these cases there was symmetrical involvement of the salivary and lachrymal glands, in seven cases symmetrical swelling of the lachrymal glands alone, in four cases swelling of the salivary glands alone, in six others symmetrical swelling of the lachrymal, salivary and lymph glands. The etiology of this disease is obscure.

Neoplasms and cysts involve the parotid and occasionally the other salivary glands, but it is quite improper to attempt to discuss in a paper of this kind a subject so comprehensive.

I have seen one case of tuberculosis of the sublingual gland.

Patient.—A woman, aged 35, presented herself at my clinic for treatment.

Examination.—I found on the floor of the mouth, in the position usually occupied by ranula, an enlargement elevated to the occlusal surfaces of the teeth and extending backward to the second molar and beyond the median line. Submentally there was considerable enlargement. On palpation the sensation communicated to the finger indicated more the feeling of a sebaceous cyst than a mucous cyst.

Treatment.—Before I had seen the case the swelling had been twice incised, but with no beneficial results. For the purpose of discovering the nature of the contents of the tumor, I passed a grooved explorer into the enlargement in the mouth and found no fluid, but a soft, dark, grayish material of fetid odor. Microscopic examination discovered tubercle bacilli in great numbers.

Diagnosis.—Tuberculous disintegration of the sublingual gland. The remains of the gland with large quantities of the doughy, dark-colored disintegrated material were removed.

I have seen one case of diverticulum of Stenson's duct.

Patient.—Male, aged 57, had observed for a number of years a growth which slowly increased in size at a point corresponding with the meatus of Stenson's duct.

Examination.—When I first saw it it was a pendulous pouch the size of a small cherry. When compressed between the thumb and finger it was emptied of a considerable quantity of saliva.

Treatment.—It in no way interfered with the function of the duct, but because of the inconvenience caused by its presence and its increasing size, and realizing that it might become inflamed through irritation by the teeth, I deemed it best to remove it.

Result.—At this time, four years later, it has the appearance of a perfectly normal meatus.

In conclusion I wish to give Dr. H. A. Potts credit for valuable assistance rendered in making the German translations from which I have gained much information on the subjects presented.

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DISCUSSION.

Dr. Frederick B. Moorehead, Chicago: "Ranula" means the belly of a frog; anything, then, in the mouth that looks like the belly of a frog is ranula. From the pathologic, or even from the clinical point of view, this term is unsatisfactory. I think that Dr. Gilmer is right in saying that rarely do we find a dilatation of the duct due to salivary concretions; in fact, I have never seen one. I have seen dilatations of the glands themselves, of the infundibula of the gland—in fact a portion of the gland might become cystic or expanded—but a dilatation of the duct *per se* I have never seen. Whether it occurs or not I do not know. Etiologically there are just two classes of these cysts, those from mechanical occlusion and those from inflammatory occlusion in which there is first, infection, an interstitial inflammation, occlusion of the duct, and desquamation of the lining epithelium, and then a conglomerate mass on the inside. Strange as it may seem, those who maintain that ranula is a retention cyst of the salivary glands have yet to prove the presence of saliva in a single one of them.

Analyses of all these cysts show, not saliva, but some other substance. What are these cysts? If they are from the salivary ducts, why does the saliva entirely disappear, as shown by microscopic examination, none of the elements of normal saliva being revealed? And why do we find mucus in quantities and its elements in these cysts? Are they retention cysts, or are they true cystomata?

DR. VIDA A. LATHAM, Chicago: In Dr. Gilmer's experience are not these ranulæ or cystic growths more common on the left than on the right side? Can he explain it from the anatomy? I reported thirty such cases for the Massachusetts State Dental Society and I think that only two were located on the right side. I do not known why. This report was published in the *Dental Cosmos*, 1906. The pressure of badly fitting plates seems to have some injurious effect. I have had four patients with this trouble in one week, and each one was relieved as soon as I could reduce the stenosis and remove the plate. A glandular secretion, together with the mucous or salivary secretion, forms a kind of colloid secretion. It is ropy and thick and of different color; it does not look like mucus, but more like the colloid secretion in thyroid tumors. The dilatation causes stenosis through spasm of the contractile tissue of the duct, just as pressure would cause a breaking up of a fluid. It is to be hoped that dentists and medical men will cease to employ iodin and other stimulating agents in these conditions. In one of the worst cases of this kind that I ever saw the surgeon consulted wanted to incise the cyst right away as a suppurating gland. To this the patient would not consent, so the surgeon painted the cyst with iodin. At 2 o'clock in the morning I was called to see a desperate case of dyspnea from the swelling that had occurred, which was so great that the respiratory apparatus was practically shut off. Only by inserting tubes and administering oxygen could relief be obtained. Another case of sublingual cyst was treated in a similar manner; the tongue swelled and prevented proper respiration. That kind of treatment should be abolished in these cases. Dead teeth, especially the lower first molars, also cause obscure conditions. This possibility should be borne in mind in our differential diagnoses. A patient came for operation for removal of the mandible; when we explored it was agreed that the trouble was caused by dead teeth. We opened up the molar and passed a fine wire through and on into the submaxillary gland and found that this was not a case of malignant disease, but simply one of dead teeth with necrosis and a sinus. The patient promptly recovered when the pulp canals were cleared and filled.

DR. HERBERT A. POTTS, Chicago: The condition which seems to me more nearly to merit the name "ranula" is a transparent, thin-walled, chronic tumor developing in the floor of the mouth, microscopic sections of which show either the whole or parts of the sublingual, not the submaxillary, gland plastered out over the walls of the cyst. The cyst walls are non-inflammatory and very thin, and rich in capillary supply. It is to this that the name "ranula," if it is to be continued at all, should, I think, be applied. Bernard and Recklinghausen have been unable to produce ranula by ligation of Wharton's duct. In this connection we are reminded that ligation of the ureter does not cause a cystic kidney. The large cystic kidney is not due to the sudden shutting off of the normal secretion of the gland, but to a chronic condition. The sudden shutting off of the excretion of the gland causes its atrophy. Suzanne and Hippel have shown this in a large number of cases. It has also been demonstrated by anatomic dissection that, in the normal individual portions of the sublingual gland have been found, as stated by Dr. Gilmer, in the fibers of the mylohyoid muscle, also beyond that. It is to this fact that we may ascribe the tumors appearing under the chin rather than in the mouth until they become so large that the fibers have separated and they have been visible both inside and out. These tumors may exist for a long time unobserved. They are undoubtedly chronic. The application of iodin as well as irritations of various sorts, causes a sudden effusion into the cyst from the rich supply of capillary blood vessels around it, and a palpable tumor results. In a series of, I believe, forty cases, Kümmel was able in every case to pass a probe into a patulous Wharton's duct showing no connection whatever between that and the ranula. These tumors are easily removed. They are covered, and very loosely, by the mucous membrane of the mouth. In some cases, when the patient closes his mouth, the tumor may be seen beneath the chin; when he opens his mouth it is gone and is in the mouth. In most cases, after incision of the mucous membrane, they may be shelled out with the fingers. Of course, they may become infected, and then the proposition becomes a difficult one.

In view of the fact that these tumors seem to merit the name "ranula" more than any other, I think that if the term can not be excluded from our nomenclature it should at least be confined to these. In THE JOURNAL A. M. A., May 30, 1908, the term "acute ranula" is applied to an abscess which was opened and was healed within a few days. In regard to Mikulicz's disease, the etiology of which is rather obscure, a number of the cases which have been collected, about 30 in all, I believe, were found to be simultaneous with enlargement and involvement of the lymph glands and lymphatics. The blood findings in many of these cases are such as are observed not only in leukemia, but in pseudo-leukemia. The microscopic sections of local parts of the salivary glands show an increase in lymphoid material, and this increase is at the expense of the parenchyma of the gland. It is rather strange, too, that the submaxillary gland, in the substance of which it is doubtful if there is any lymphatic tissue, although there are a few lymph glands at the bifurcation of the artery which supplies the gland, also enlarges in this condition either on one side or both sides, usually on both. Mikulicz has described the symmetrical swelling of these glands, in which this gland is also involved.

DR. THOMAS L. GILMER: In answer to Dr. Latham, I have found these conditions existing on the left more frequently than on the right side, but do not know the reason.

THROMBOSIS OF SUPERIOR LONGITUDINAL AND LATERAL SINUSES COMPLICATED BY PREGNANCY.

TREATED BY OPENING THE TORCULAR HEROPHILI.

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The following case is reported somewhat fully, for the following reasons: First, it is an extreme case of uncomplicated infective thrombosis of the superior longitudinal and lateral sinuses arising from a chronic purulent otitis media and mastoiditis; second, during the course of the illness, which was most profound, the patient carried a five to seven months fetus, later giving birth to a healthy child, and third, one of the operative procedures, which was directly accountable for the patient's recovery, I believe to be the first on record. I make this last statement with some hesitancy, but I have been emboldened to do so on account of the various answers to communications I have had with several authorities, both in this country and in Europe; also because my attempts to find a similar case have been futile.

History.—Mrs. T. L., aged 18, entered Mount Zion Hospital Oct. 9, 1907. For eleven years she had had a purulent discharge from the right ear, with earache and tenderness over the mastoid at various times. Father, mother and sisters were well and she showed no evidence of previous sickness other than that from her ear. The right ear became unusually painful three days previous to her entrance, with great tenderness over the mastoid, and profuse discharge from the meatus.

Examination.—The mastoid was normal in appearance, sensitive to touch, and the auditory canal occluded with polypi. The patient was delirious; her temperature 102.4 F.; pulse 144. Blood count showed 11,300 leucocytes with 85 per cent. of polymorphonuclear leucocytes. Patient was five months pregnant and had a bloody and purulent vaginal discharge. Fundi of the eyes were normal. At ten o'clock in the evening the patient was taken to the operating room.

Operation.—There was no swelling or redness over the mastoid region, neither were there any outward indications of cerebral complications or thrombosis. The auditory canal was cleared of polypi, and an incision made over the mastoid. While separating the periosteum from the posterior superior wall of the osseous meatus a quantity of foul smelling pus, under pressure was evacuated. This came from the mastoid cells and had opened under the periosteum of the osseous meatus; it was packed off and the mastoid cells entered directly through a hard lamella of bone, when more pus of the same nature was freed. The opening was enlarged, and a quantity of granulation tissue and several small sequestra of bone were removed. The sigmoid sinus was exposed for an inch and a half past the knee into the lateral sinus. The sinus was found to contain no blood and without effort a probe was passed through an opening in its wall which was gangrenous and irregularly discolored. The opening into the antrum was next enlarged and the superior posterior wall of the osseous meatus chiseled away, much of which was found to be carious. The bone of the facial canal was unaffected. My intention was to perform a radical operation with the removal of the contents of the tympanic cavity, but after finding that the tegmina antri and tympani were intact and that the infective process had not extended in that direction I satisfied myself with a thorough curettage of the antrum and aditus, and on account of the grave condition of the patient, directed my attention to the sinus. The sinus was slit open, and some foul pus and débris liberated. A blunt curette was passed towards the bulb followed by free bleeding. The sinus was then curetted in the opposite direction for a distance of three and a quarter inches with but slight bleeding; it was then packed in both directions. The advisability of ligating the jugular at this time was considered, but on account of the free hemorrhage obtained from the inferior petrosal sinus or jugular vein and the very poor condition of the patient, it was deemed best to await further developments. Immediately following the operation the patient was exceedingly weak with temperature of 103.2 F., pulse 138 and respirations 28.

Postoperative History.—October 10: Temperature normal with pulse 108 and respirations 20. Patient vomited all fluids and heroin was given to relieve the pain which seemed to be localized in the ear.

October 11: Condition same. Temperature normal, vomited often, complained of sévere pain in head. Wound dressed with little bleeding, from the sinus. Abdominal pains.

October 12: Patient more quiet. Temperature rose for a short interval from normal to 100.2 F. Pulse from 96 to 110. Respirations normal; no vomiting; eggs and broth retained. Vaginal discharge examined, and found to contain gonococci. Blood showed 15,200 leucocytes and 84 per cent. polynuclears.

October 13: At 6 a. m. patient had a chill lasting twenty minutes; at 10 a. m., temperature was 105.4 F., pulse 160. At 12 o'clock temperature was 101.8 F. and at 2 p. m. it was normal with pulse 120 and respirations 20. Heart and lungs examined and found to be normal, fundus of eyes normal. There was no question now that the thrombosis had again become active and that infective material was being liberated into the circulation, either directly by the jugular vein or through the torcular Herophili to the lateral sinus of the opposite side.

October 14: Patient was very restless; complained of pains in the back and abdomen, but an examination failed to reveal an infection of any organ. At 5 p. m. she had a chill lasting half an hour and at 7 p. m. the temperature was 105.3 F., pulse 168, respiration 34. At 10 p. m. temperature was 100 F. and pulse 134.

Second Operation.—At 11 p. m. the patient was again taken to the operating room with the idea of resecting the jugular vein, but owing to the very depressed condition following her rise of temperature a hasty and simple ligation of the jugular was made at the level of the cricoid cartilage. Blood count during the day showed: Reds, 4,200,000; whites, 13,000; polynuclears, 83 per cent.; large lymphocytes, 2 per cent.; small lymphocytes, 15 per cent.; hemoglobin, 70 per cent.

October 15: Very restless and irritable, pain over the right side of head. Rectal saline infusion of 500 c.c., was used with apparent benefit. At 2 a. m. she had a chill followed by a temperature of 104.8 F. returning to normal at 6 a. m.

October 16: Patient very depressed, could not retain nourishment. At 4 p. m. she lapsed into a state of complete collapse, respirations and pulse appearently ceasing. She was revived by a high rectal saline infusion and hypodermics of nitroglycerin, strychnin and brandy, with a return to consciousness in about 20 minutes. Temperature did not rise over 100.8 F., during the day and was subnormal most of the time—97.2 F. White blood cells, 15,200; polynuclears, 82 per cent.

October 17: Nutrient enema of whiskey, peptonized milk and egg. Could not retain food on the stomach. At 12 m. she had a chill; highest temperature, 105.6 F.; pulse 168. Saline rectal infusion followed by marked improvement, and later enema of coffee and whiskey. At 11 p. m. patient had so improved that it was decided to resect the jugular above and below the previous point of ligation.

Third Operation.—The vein was ligated well above the entrance to the facial vein, and resected to within one inch above the clavicle. A small clot was dislodged from the upper part of the jugular after removing the ligature, but there was no evidence of the infective process having extended down to the point of ligation; this was confirmed later for the wound healed within a few days with the aid of small cigarette drain.

Postoperative History.—October 18: At 6 a. m. patient had a severe chill lasting 59 minutes. Saline infusion of 250 c.c. was given and later an enema of coffee and whiskey; all were retained. She became delirious, the temperature rising to 104.4 F. and pulse 162; descending to 97 F. with pulse 104.

October 19: Patient irritable and restless; heroin given. She retained on stomach peptonized milk and whiskey which was used as freely as possible. At 1 a. m. she had a chill lasting 50 minutes, temperature rising to 105.6 F., pulse 193, respiration 28. After each rise of temperature it always descended in from two to six hours to normal or subnormal, the pulse remaining comparatively high.

October 20: Patient retained some nourishment by stomach. The lungs, heart, kidneys, liver, urine, etc., were found to be normal, and fetus alive though she complained of abdominal pains. She had a chill at 4 p. m.; temperature 106.4 F., pulse 166. At 10 p. m. temperature was normal.

October 21: Patient was delirious, restless and vomited continually. At 10 a. m. the temperature was 106.4 F., which descended slowly, reaching normal at 6 p. m. A bacteriologic examination was made. The arm over the median cephalic vein was thoroughly sterilized, and the vein exposed, from which blood, uncontaminated from external sources, was extracted. After incubation it was shown to contain a pure culture of *Staphylococcus pyogenes aureus*. From the above culture a vaccine was made, according to Wright's method, for the purpose of combating her general septic condition. It was never used on account of subsequent developments.

October 22: Patient vomited continuously, was delirious much of the time and general condition very poor. At 12 m., after a chill, her temperature rose to 106.2 F., pulse 180, and respiration 36. The wound was dressed each day and the sinus irrigated and packed. The foul odor so noticeable at first had decreased, the probe and the blunt curette were used in the lateral sinus posteriorly as far as the torcular without showing a trace of blood. There was no bleeding noticeable from the direction of the bulb where the inferior petrosal sinus empties.

October 23: Patient had a chill, the temperature rising to 107.2 F., pulse 190, respiration 38. Later the temperature was 97.4 F., and pulse 104. Fetus was alive.

October 24: Patient very weak; vomited all food. Chill, temperature to 105.4 F., down to 97.2 F.

October 25: At 10 a. m. the patient's temperature rose to 107.4, pulse about 200. Lowest temperature 97.2 and pulse 98. At 3:20 p. m. the patient was removed to the operating room with the intention of opening the torcular Herophili through the occipital protuberance

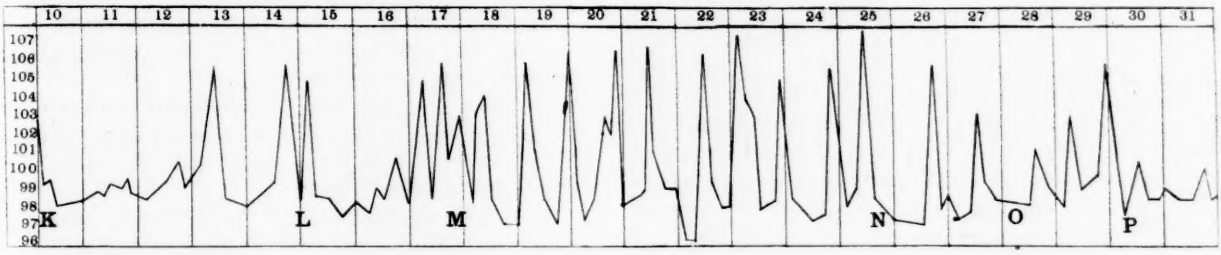
The question of meningitis, epidural abscess, cerebral and cerebellar abscess was considered. The temperature course would almost exclude a meningitis. The complete absence of pressure symptoms, such as headache, reduced pulse rate and changes in the optic nerve, with the great variation of temperature and the fact that by further exploration, the walls of the antrum, aditus, and tympanic cavities were found to be intact, seemed to exclude cerebral and epidural abscess. There were two questions remaining, a possible cerebellar abscess, which frequently exists with masked symptoms, and a simple infective sinus thrombosis. The close proximity of the cerebellum to a gangrenous and infected sinus, rendered likely an abscess of this part. One thing was certain, that the real source of infection and the chief cause of the symptoms was the dislodgement into the circulation of infective material containing staphylococci, and coming from one of the venous sinuses of the brain. The lateral sinus could be probed from the mastoid to the torcular and seemed to be free of infective material as well as blood. I was compelled to conclude that either the straight, the superior longitudinal, or the lateral sinus of the opposite side was affected. The possibility of the thrombus extending along the superior and inferior petrosal sinuses from the sigmoid to the cavernous sinus was considered, but the absence of all eye symptoms directed my attention again to the sinuses in the posterior region of the cranium. An infection through the posterior condyloid and mastoid emissary veins which communicated with the subclavian and innominate veins, seemed hardly possible.

Fourth Operation.—Never having heard of the torcular Herophili being operated on, and knowing the great danger of opening this confluence of all the sinuses, thereby shutting off the venous circulation of the brain, I went with some trepidation to the task, realizing that my patient would die at any moment as she was rapidly growing weaker, and the temperature variations were becoming more marked. The superior longitudinal sinus as a rule empties more directly into the right lateral sinus, while the straight sinus empties even more directly into the left lateral sinus. As the right side of the torcular, where the lateral sinus starts, was apparently occluded, I determined to trephine directly over this region and endeavor to enter the superior longitudinal sinus through the torcular Herophili. As a preliminary procedure the cerebellum was opened at a point one and one-half inches posterior to the auditory meatus and one-half an inch below, the dura incised and a bistoury passed into the cerebellar substance in various directions without revealing any pus. I then selected a point one-half an inch to the right, and slightly below the occipital protuberance for the purpose of entering the torcular Herophili. A chisel and gouge were used to thin the bone, preparatory to the trephine. The cranium in this region is very thick, cancellous and filled with blood vessels that bleed freely; the latter were controlled by the use of sterilized paraffin. Rongeur forceps were quite inadequate in this region, but several adjacent trephines aided by the gouge and mallet gave an opening sufficiently large to work on the torcular Herophili with its several confluent sinuses. One must be in a position to check bleeding from one or more sources and still be able to continue the operation. A circular opening at least two inches in diameter, with its precipitous edges well chiseled away, seemed sufficient. A larger area was impracticable owing to the great thickness of the cranium in this region, and the hemorrhage from the bone in enlarging it. The lateral sinus was readily distinguished at its exit from the torcular, and also by the fact that at this point it was collapsed and discolored. An incision was made in it, extending into the torcular followed by only a slight oozing of blood. A curette was inserted a distance of four inches into the superior longitudinal sinus with no signs of blood, but a quantity of dark and foul smelling material was removed. The probe was then passed toward the left lateral sinus and some bleeding occurred. This encouraged me to use the curette, which was followed by a gush of venous blood that was checked by compression. A strip of gauze was inserted into the superior longitudinal sinus for a distance of two inches, and a piece of gauze was carried along the lateral sinus to its opening in the mastoid. The wound was dressed and patient returned to bed.

Postoperative History.—October 26: Patient was in fair condition; restless; vomited frequently. At 5:30 p. m., twenty-five hours after the operation, she had a chill lasting half an hour. At 6:30 p. m., the temperature was 105.8 F., pulse 175. Temperature descended to 97.4 F. in a few hours. A nutrient enema of whiskey one ounce, digitalis 20 minims and milk 4 ounces was given and retained.

October 27: Patient same as day before, vomiting, etc.; nutrient enemas with whiskey in large doses were given; highest temperature 103.2 F. A quantity of dark and purulent detritus with foul odor removed from the longitudinal sinus.

October 28: Ice cap was applied. Patient vomited, but retained some peptonized milk and whiskey. During the dressing, pressure was removed from the left side of the torcular and a blunt curette gently passed into the left lateral sinus; twelve ounces of blood was extracted, which came in a gush. My idea was to carry outward, if possible, any thrombotic material which might be lodged in the straight, the occipital or the left lateral sinus. The temperature that day did not rise above 101.6 F.



Temperature chart of Mrs. T. L.; a case of thrombosis of the superior longitudinal and lateral sinuses. Treated by opening the torcular Herophili. Complicated by pregnancy. Recovery. K, operation on mastoid and lateral sinus; L, ligation of jugular vein; M, resection of jugular; N, opening of torcular Herophili through occipital protuberance; O, extracted 12 oz. blood from left lateral sinus; P, extracted 8 oz. blood from left lateral sinus.

October 29: Patient vomited to some extent, but was not so restless; very irritable temper. Nutrient enemas and temperature again to 105.6 F.; pulse 140.

October 30: I decided to repeat the same procedure of two days before, and removed 8 ounces of blood. This was followed by a rise of temperature to 100.5 F.

October 31: Patient ate and retained eggs, fish, toast and coffee. Temperature rising for a short time to 100.4 F., with pulse 140. The latter remained high regardless of the temperature.

November 1: Highest temperature 99.2 F.; pulse 138. The temperature after this date never rose above normal, though on November 4 it descended to 96.2 F., with some depression.

This case was an uncomplicated thrombosis involving the entire right lateral sinus, and superior longitudinal sinus, with unquestionably the inferior petrosal, straight and occipital sinuses and torcular Herophili involved in the same process.

Over fourteen inches of venous blood current were obliterated, including the right jugular vein, sigmoid, lateral and superior longitudinal sinuses. After occlusion of the right lateral and superior longitudinal

sinuses, blood was freely extracted from the left lateral, straight and occipital sinuses through the torcular Herophili which procedure marked the termination of her general sepsis.

On January 31, four months after the illness, the patient gave birth to a remarkably fine child weighing seven and one-half pounds. On March 15 the wound had entirely cicatrized over the posterior part of the cranium. A small fistulous opening remained in the mastoid which communicated directly with the tympanic cavity.

The radical operation which had previously been so rudely interrupted was now completed. The malleus and incus were removed, also the outer attic wall and the Eustachian tube obliterated. The area over the region of the sigmoid and lateral sinuses was covered by a dense mass of fibrous tissue which was left intact. The mastoid wound was entirely closed and healed by first intention. Two months later the tympanic cavity and antrum are well lined with skin and the patient discharged. Hearing in that ear is the watch at 16 cm. (6½ in.).

THE FACTORS IN THE ESTIMATION OF BLOOD PRESSURE.*

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The first factor in the interpretation of blood pressure must be a satisfactory instrument. It should, to be of service for general work, be portable, quick of adjustment and accurate. These qualities are possessed in eminent degree by the tonometer of Recklinghausen. It does not detract from the achievement of Riva-Rocci that later modifications have improved the technic; his merit will always lie in the impetus given to the study of blood pressure as a routine feature of the general examination; the aim now must be to analyze the findings properly.

The tonometer of Recklinghausen is based on the principle, first introduced into physical science by Bourdon and later incorporated into the kymograph of Fick, that if a very shallow, curved, elongated air chamber, fixed at one end, communicate at one end of the arc with a pressure apparatus, while the other is closed, any increase of pressure will be made manifest by a flattening or elongation of the arc, thereby imparting a certain movement to the end that is free. By a very simple device this movement of the air chamber is communicated to an axis, on which, guarded by a hair-spring, there is fastened a long needle, whose tip is made to move along a graduated scale, previously standardized, and the final figures are read off from the dial.

A notable advantage in the Recklinghausen apparatus is found in the pump. A metallic air-pump, constructed somewhat on the principle of the bicycle pump, is substituted for the ordinary double rubber bulb. The pump permits of increase or decrease of pressure at the will of the examiner; the instrument is at all times under perfect control; measurements can be made with greatest accuracy and promptly verified. By an ingenious arrangement of valves, easily controlled, this increase or diminution of pressure can be made to take place slowly. The whole apparatus is manipulated, without any force, by one hand, while the other is free to take the pulse. The pump is light, durable and only requires an occasional application of vaselin to valves and piston head.

The cuff is very broad, has a relatively small elastic chamber and a very strong band of thick canvas. It is applied by a buckle and strap, so that it can be snugly fitted to the arm. It is 12 cm. wide. The distention of the rubber pocket can never be very great, though the pressure run to considerable figures. The whole apparatus has, when packed, a weight of four and one-half pounds, and can be easily carried to the bedside of the patient.

The distinct advantage of the Recklinghausen apparatus is in its ability to measure both systolic and diastolic pressures. It will be seen that the mere determination of systolic pressure, though a step in advance, offers little help in the solution of clinical problems; the important thing is the relation of systolic and diastolic pressure. Aside from the actual pressure, measurable directly in centimeters of water, the tonometer makes it possible to observe the rhythm in time and power of the heart's contractions. It will frequently happen that the pulse seems perfectly regular at the wrist, when the ocular evidences of the slightly unequal movements of the needle will show the contrary; the pulse may seem to show an equal filling of the artery at each contraction, but the dial will record differences in this regard. Again, in many organic affections of the heart, a peculiar vibratile oscillation of the needle accompanies the excursions of the pulse, instead of the gradual rise and undulating decline, so that the tonometer offers all the advantages of a sphygmographic tracing, along with the information as to blood pressure.

Care must be taken that the examinations are not too long continued, for the interruption of the circulation in an extremity, if prolonged, will of itself cause changes in the blood pressure.

I start with this postulate: The arterial system has a capacity such that, if all arteries were perfectly limp and dilated, it could never be filled by the available amount of blood. The conditions necessary for a proper circulation are only secured by a certain permanent state of contraction common to all, or nearly all, of the arteries; a state of contraction still further increased with the functional inactivity of the parts supplied, and diminished, but never wholly relinquished, with the proper exercise of function. This brings the general conception of the circulation directly into line with what is known of the safeguarding devices with respect to the heart proper, and, as Gad has shown, with respect to the respiration, in which a state of partial but permanent inhibition always supplies a natural reserve to meet emergencies of all kinds.

This view is directly at variance with older physiologic doctrine. Thus Landois says:

> The system of blood vessels, with its many ramifications and subdivisions endowed everywhere with contractility and elasticity, is not only filled with blood: it is overfilled. Hence the mass of blood produces a certain pressure, which produces a stretching of the elastic vessel wall. This, of course, applies only to conditions during life; after death the muscular tissue of the vessel walls becomes relaxed and some fluid finds its way out into the tissue.

In the same way the doctrine that frequency of pulse-beat increases the blood pressure will doubtless receive revision. Foster says:

> If, while the force of the individual beats remains constant the frequency is increased or diminished, and, vice versa, if

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

while the frequency remains the same the force is increased or diminished, the pressure is proportionately increased or diminished. This clearly must be the case, but obviously it is possible that the beats might, while more frequent, so lose in force, or while less frequent so increase in force that no difference in the mean pressure should result. And this, indeed, is not infrequently the case. So much so, that variations in the heart beat must always be looked on as a far less important factor of blood pressure than the peripheral resistance.

Clinical experience seems to demonstrate that actually the pressure is not influenced by the pulse-rate in the way that might be imagined. Weigert,[1] in a study of 241 cases of acute infectious diseases, found that the lowest pressures in many of these were observed not during the height of the fever, but in the first few days of returning normal temperature; at a period when the pulse was much slower than it had been; when the individual complained of a peculiar gone or good-for-nothing feeling, and when there was always some danger from any peculiar sudden effort. At this period there frequently is an abnormally slow pulse, coupled with this minimum pressure.

Conversely, I have recently had the opportunity of observing a case of paroxysmal tachycardia in a young man of 18, exceptionaliy tall and fairly well developed, whose heart, on January 14, when he presented himself, beat so fast and irregularly that the pulse could not be counted. The blood pressure in cm. of water, measured by the tonometer, was 122, diastolic 100. The patient was put to bed on light diet and took triple bromids with mild laxatives for two days, when the blood pressure was 128, diastolic 106, the pulse-rate being 72; January 24, the patient being now up and about and again attending a technical school, the pulse-rate was 84, the blood pressure was 134, the diastolic 96; April 25, the pulse-rate was 102, the pressure 132, the diastolic 104. The pressure was practically the same at every stage, regardless of pulse frequency.

There is as yet no normal standard of blood pressure, and it is difficult to see how any uniform basis for comparison shall be found. Different observers have employed different instruments; from this fact alone there would naturally arise some discrepancy; but even with the same instrument the figures have not been even approximately uniform. Tables hitherto given have been based on observations of maximum or systolic pressure only, because it was impossible to get the diastolic pressure with the method employed. The Erlanger instrument is suitable only for hospital or office use; the tonometer of Recklinghausen is the only instrument thus far devised that conveniently gives us both of the data with certainty and promptness.

The accompanying table gives the figures as stated by different observers:

Landois, for larger mammalia and probably for man, 140-160 mm.
Faivre, direct measurement, 110-160 mm.
Albert, direct measurement, 100-160 mm.
Kuhe-Wiegandt, in uremic patient, 150 mm., direct measurement.
Basch, in temporals, 90-120 mm.; in radials, 110-160 mm.
Federn, 80-90 mm.
Bruce, 100-130 mm.
Tschlenoff, in radial, 70-100 mm.; in tibial, 60-70 mm.
Huerthle, 100 mm.
Frey, in digital arteries, 100-110; in radials, 150-160 mm.
Eckert, in temporal, 175 mm.
Hensen, in 25 healthy men, aged 17-30, 137 mm.; in 30 women, aged 17-30, 132 mm.; normal range, 100-160 mm.
Gumprecht, in men, 140 mm.; in women, 120 mm.
Weiss, in men, 120 mm.; in women, 100 mm.
Schüle, 80-130 mm.
Neisser, 90-100 possible 160 mm.
Jellinek, in 500 soldiers, 100-160 mm., may be 180 mm.
Neu, 80-130 mm. (regards 130 as abnormal, most frequent 95-115 mm.).
Erlanger, systolic, 110 mm.; diastolic, 65 mm.
Graupner, 115-125 mm.
Sawada, 90-120 mm.
Schilling, 90-120 mm.
Janeway, 110-125 mm.
Sahli-Gassel, 135 mm., high limit of health.
Eichberg, in members of class in medical school, systolic, 86-120 mm.—diastolic, 56-88 mm.

No single reading should be considered a basis of final judgment. It is necessary to see the patient a number of times and to make the observations under diverse conditions, if possible, before estimating the blood pressure as an element of diagnosis. Error has arisen from neglect of this injunction, which has been especially insisted on by Sahli, Krehl and others.

To obtain a fair idea of the blood pressure normal to the individual, observations should be made with the patient fasting and again just after a meal: with the patient reclining and seated or standing; with the patient at rest and after a sudden muscular effort. This will give data for estimation of the actual work of the heart, and also an idea of its recuperative power, a feature of more significance in an estimate of the condition of the circulation than the mere value in figures. It may be assumed that, while an approximate standard exists, taken as an average of many observations as to what should constitute the normal pressure, this varies with each individual, and that it does so with the same individual at different times. The term "amplitude" is suggested by Klemperer for the difference between the systolic and diastolic pressure. Variations in amplitude in the same individual constitute a most important part of the study.

The amplitude increases for organic disease of the kidney, arteriosclerosis and aortic insufficiency. It diminishes for other organic diseases of the heart, affecting the valves or myocardium. It is interesting to note that in a healthy circulation the amplitude increases with moderate exercise, while every deficiency of the circulation manifests itself by a reduction of the amplitude, even when the systolic pressure is increased; this fact enables us to differentiate certain of the nervous disturbances of the heart from those due to organic mischief. In the case of the athlete with damaged heart, the initial amplitude was 114 c.c. in the recumbent position; in the sitting position, 108; after walking upstairs, 94; ten minutes later, 68. In one healthy young man the initial amplitude was 32; after walking, 48; in another test, initial amplitude was 36, after climbing stairs 46; on another occasion 30, after effort 48. According to Gerhardt, the systolic pressure in broken compensation is high, but the amplitude becomes small as the heart grows weak and again becomes greater as more powerful contractions are resumed.

The effect of exercise on the blood tension is a matter of daily personal experience. Any unusual effort makes us conscious of the beating of the heart. This implies an increase of work on the part of the heart, and an increase of arterial tension. The increase of tension is not directly proportioned to the work performed. Thus Masing[2] has shown that the labor of lifting 10 kg. produces a rise disproportionately greater than the labor of lifting 5 kg.

The fact that such an increase occurs makes it necessary to consider the previous conditions of the patient at the time of the observation. But the very fact of such increase as a normal reaction furnishes an important diagnostic aid. The healthy individual, after measured exercise, will present the increase of pressure,

1. Samml. klin. Vortr. (Volkmann's), No. 459

2. Deutsch. Arch. f. klin. Med., November, 1902, lxxiv, 253.

usually with increase of pulse-rate, the increase being more marked in the systolic than the diastolic pressure; but soon after the completion of the work, if not too greatly prolonged or too severe, the tension returns to the normal. For example, in a healthy young man, with an initial systolic blood pressure of 140 c.c., the pressure rose after walking up two flights of stairs to 170 c.c., but within five minutes was back again to 140 c.c. A striking contrast to this was offered in the case of a former circus athlete, now aged 53, who had a marked mitral insufficiency with arrhythmia and arteriosclerosis and a pulse of 96. The initial pressures here were, with the patient lying down, systolic 236 c.c., diastolic 122 c.c.; with the patient sitting, 240-132; after walking up two flights of stairs, 216-122; ten minutes later, 190-122. Here the tension was not only lower immediately after the exercise than before, having fallen from 240 c.c. to 216 c.c., but it continued to decline when the patient was again at rest, and after fifteen minutes was still 50 c.c. lower than at first. A reaction of this kind always indicates a damaged myocardium.

Even in the presence of recognizable valvular lesion, the effect of such a test will, if the heart muscle be competent, give instant information. A man, aged 34, with an old mitral insufficiency, gave, while resting, systolic 168, diastolic 122; after exercise, systolic 188, diastolic 122; after five minutes, systolic 166; next day, while resting, systolic 158, diastolic 122, thus showing adequate compensation.

It is possible by practice gradually to increase the amount of work that can be performed, while still permitting the prompt return of the circulation to the state of normal tension, and this constitutes a proper system of training, as that term is generally understood. The injurious effects of training will inevitably appear sooner or later if such training carries the work beyond the point where a quick return to the normal tension is possible. The true limit of the training capacity of the individual is thus to be found in the interrogation of the arterial tension. Naturally the work that can be imposed on a damaged circulation and yet remain within its training capacity will always be less than that imposed upon a normal individual; in the selection of the test to be employed care and discrimination must always be exercised. Cases of advanced organic disease, of aneurism, of convalescence from exhausting acute disease, may be altogether unsuitable for its performance.

When the effort is prolonged but moderate, the pressure rises, but soon adjusts itself to a mean higher level, in which any slight additional effort produces no effect. Thus in the case of the young man just mentioned with a normal pressure of 140 c.c. the systolic pressure after walking one mile was 154 to 112 diastolic. Walking up two flights of stairs then made no difference, the pressure remaining at 154-112.

The quantity and viscosity of the blood necessarily influence the blood pressure. Moderate blood-letting up to 2.8 per cent. of body weight is not attended by any noteworthy decline of pressure. Blood-letting up to 4 or 6 per cent. of the body weight reduces the blood pressure to zero. The blood pressure is increased by any addition to the volume of the circulating fluid, as by injection of defibrinated blood, or normal salt solution, either directly into the veins or into the subcutaneous tissue, respectively. After copious meals there is also an increase of blood pressure, attributable in part to addition to the volume of circulating fluid. There is as yet no satisfactory means of determining the viscosity of the blood. Boveri[3] found that hypertension from adrenalin or tobacco was always accompanied by a notable increase of erythrocytes. Paul Arnold[4] also notes that chronic increase of the blood pressure, as a rule, leads to increase of red corpuscles and hemoglobin. Boveri remarked on the distinct parallelism between the viscosity of the blood and the number of erythrocytes, so that a polycythemia would usually indicate an increased viscosity.

The most important factor in the control of blood pressure is the nervous system. It had been known that almost every phenomenon connected with life, whether it be a physical or mental phenomenon, produced, temporarily at least, a modification of pressure over a larger or small portion of the vascular area. Taking the physiology of the nervous control for granted, it is of interest to note that recent experiments have added much interesting light. Curschmann[5] finds that the effect of painful faradic currents applied in such a way as to avoid motor points of irritation, in normal individuals, is generally to increase the blood pressure; in persons with organic or functional hypertension the increase is disproportionately greater. In organic analgesia the experiment produces no modification of pressure, nor is there any change in hysterical analgesia until the hysteria is relieved—thus seemingly proving that there is an actual sensory lesion in hysteria. Klemperer,[6] while admitting the influence of physical work in increasing the blood pressure, says that the amount of this increase is largely determined by psychic factors. Masing[7] determined that the increase of blood pressure with any given effort was less according as there was less determined effort of the will. Kiessling[8] shows that efforts which are unusual, requiring more mental concentration, are accompanied by a greater rise of blood pressure. Direct stimulation of the cortex in curarized animals is attended by a signal rise of blood pressure.[9] In man an analogous result follows hypnotic suggestion (Klemperer[6]). Here, with the muscles perfectly limp, the suggestion of work, such as mounting stairs or drawing a tight cork from a bottle, raised the pressure from 178 c.c. to 206 c.c. It then dropped to 176, and with a further suggestion rose to 210 c.c. The mere intention of doing work, the willing to do it, increased the pressure.

Passive movements, except those causing pressure on the thorax or abdomen, may be performed for a long time without increase of pressure. Klemperer says that the least factor in the increase of pressure attending any given work is due to the necessary muscular activity; the participation of the cerebral cortex is the principal cause. This fact may well explain the advantage of passive movements in cases of heart lesion, either alone or, as at Nauheim, if coupled with effervescing baths, and gradually changed into resistance movements.

Dyspnea increases the blood pressure very materially.[10] This applies not only to acute suffocative conditions but to dyspnea of long standing. The amount of this increase varies greatly in different individuals, depending on the degree of the dyspnea and the power and adapta-

3. Clin. med. ital., September, 1906.
4. Dissertation, Würzburg, 1907.
5. Berl. klin. Wchnschr., 1907, p. 132.
6. Ber. ü. d. Verhandl. d. Kong. f. innere Med., 1907.
7. Deutsch. Arch. f. klin. Med., 1902, lxxiv, 253.
8. Dissertation, Greifswald.
9. Weber: Arch. f. Anat. u. Physiol., supplement, 1906, p. 309.
10. Jaeger, O.: Dissertation, Leipsic, 1906.

bility of the heart. The walls of the vessels contract when the blood becomes distinctly venous in type. It is the increasing venosity of the blood, according to Landois, which causes the emptying of the arteries after death. The vasomotor center in the medulla is the direct agency in this phenomenon, the ganglionic cells being exceedingly sensitive to changes in the composition of the circulating fluid.

Contrary to what might be expected, acute infectious diseases have but little influence on the blood pressure. If we stop to reflect, the fact need cause no surprise, since the compensating mechanisms of the body are so abundantly provided that an acute condition, though it strain the limit of reserve, does not utterly exhaust it. Gerhardt[11] shows that in febrile diseases, as the heart grows weak, the arteries contract (probably under vasomotor influence), thus preserving the pressure. A very exhaustive study has lately been made by Weigert[1] of Dresden. In many of the acute infections the pressure fell during the height of the fever and returned to the normal as convalescence was established. There was no proportionate decline in pressure with increasing gravity of the symptoms. The report is based on a study of 241 cases, and the pressures recorded are all systolic. In typhoid fever there was a decline at the height of the fever. In pneumonia no change was noted at any stage, not even in the crisis. In scarlet fever without complication there was no change; the same was true of diphtheria without complications. The observations of the blood pressure furnished no certain prognostic indications nor suggestions for treatment. How little could be learned from the blood pressure with regard to the gravity of the case was shown in a case of ulcerative endocarditis, with general bacteriemia, in which six days before death the pressure was 140 mm.; three days later it was 95 mm.; then, despite increasing frequency of the pulse, it rose to 115 mm., and shortly before death attained 125 mm. In another case of ulcerative endocarditis with streptococci in the blood the pressure on the second day was 136 mm.; the next day it was 122; then it rose to 155 mm. on the tenth day, and on the eleventh, the day of the patient's death, it was 145.

However, Cook and Briggs[12] found in typhoid cases a hypertension increasing with complications, parallel to the severity of the disease and to deepening intoxication. The occurrence of perforation, confirmed by operation, was indicated by a sudden jump in pressure before the appearance of any other symptom, the pressure rising from 106 to 144; while in another case with seeming certainty of perforation, as shown by leucocytosis, rapid pulse and sharp abdominal pain, without rise of blood pressure, the operation failed to show any sign of perforation. Similarly, Teissier and others have found in the sudden increase of pressure a precursor of hemorrhage. Crile, too, found this increase of blood pressure in cases of perforation confirmed in four cases by operation or autopsy. In making this observation frequent tests will be indispensable, and only very marked, sudden fluctuations can be of value.

The acute condition may pass without notable change in blood pressure, but the subsequent history of these cases, as recently studied by Thayer in typhoid, shows that after the lapse of several years the damage done may become manifest. Thayer's patients all showed an increase of blood pressure as compared with other individuals of the same age. Many had developed arteriosclerosis. The greatest rise was observed in the later decades.

Determination of a high or low pressure is in itself of no value. The lowest values compatible with life are found by Neu[13] to be from 40 to 45 mm., and these occur only with subnormal temperature in the moribund state, though Neu[13] has seen patients recover after the pressure had fallen as low as 50 mm. The greatest variation that has come under my personal observation was noted in the case of a shoemaker, aged 64, with arteriosclerosis, a man of temperate habits, with no recognizable lesion except a slight bronchitis, where the amplitude was 212 c.c., the systolic pressure being 394, the diastolic 182 c.c.

It is in chronic conditions that the study of blood pressure is of the greatest advantage for diagnostic and therapeutic purposes. Friedrich Müller states that the constant increase of blood pressure is the earliest symptom of a developing arteriosclerosis, and Groedel[14] maintains that the constant increase of blood pressure, in the absence of aortic insufficiency and of interstitial nephritis, is in itself sufficient to establish a diagnosis of arteriosclerosis. Hypertension does not necessarily exist in every case of arteriosclerosis; on the contrary, normal pressure may be present in advanced cases, but where the increased pressure is found the presence of arterial changes is indicated.

Hypertension, however, is not in itself a disease. Graupner[15] says that it is an accompanying or resulting symptom of many anomalies of nutrition — diabetes, gout, syphilis, chronic lead poisoning and certain kidney affections, all of which lead to changes in the splanchnic distribution. Changes may be present in the aorta, in the cerebral or brachial arteries, without any change in tension. Romberg and Hasenfeld have shown that hypertension occurs only when the arteries of the splanchnic territory are extensively involved. Sclerosis of the arteries is a very slowly progressive change. Its nature has been most exhaustively studied by Jores.[16] The association with nephritis has long been recognized. Groedel found in seventy-one cases of nephritis a minimum pressure of 130 mm., and more than half had a pressure of 170 mm. or more.

The general assumption has been that hypertension is in itself very dangerous, inasmuch as it leads to alteration of the vessel wall, possibly to rupture, or induces cardiac hypertrophy and subsequent dilatation, so that in every case baths, iodin compounds and nitrites should be used. This view is strongly combated by Krehl[17] and by Bier. They regard the high pressure as compensatory. In chronic kidney disease the high pressure causes a more rapid flow through the reduced vascular area in the kidney, and this more rapid flow allows of necessary elimination. In many cases, with a more effective action of the kidney, the pressure promptly declines. Krehl cautions against unnecessary interference with this beneficial automatic arrangement for maintaining the competency of the kidney, except in so far as regulation of the diet may reduce the proportion of waste products to a minimum, for reduction of blood pressure will retard the elimination from the kidney and increase the

11. Samml. klin. Vortr. (Volkmann's), No. 470.
12. Johns Hopkins Hosp. Rep., xi.
13. Experimentelle und klinische Blutdruck-Untersuchungen, Heidelberg, 1902.
14. Ber. ü. d. Verhandl. d. xxi. Kong. f. innere Med.
15. Berl. klin. Wchnschr., 1907, No. 15.
16. Wesen und Entwickelung der Arteriosklerose, Wiesbaden, 1903, Bergmann.
17. Deutsch. med. Wchnschr., 1905, No. 7.

patient's danger. In six cases of chronic kidney disease with hypertension reported by Graupner the blood pressure fell as soon as the function of the kidney improved; the compensatory increase of tension was no longer necessary. Similarly Krehl regards the hypertension in arteriosclerosis as part of the natural regulation with which we should not interfere. On this point, however, issue may be taken, provided a healthy heart muscle exists. If the heart be insufficient, or if its power of adaptability be greatly reduced, then it is probable that the hypertension assists the circulation. But with a normal heart the increase of tension in arteriosclerosis is due to mechanical conditions, thickening of vessel walls, reduction of caliber, loss of elasticity—all purely mechanical obstacles, whose effects can be modified by treatment.

The indication of the necessity for treatment, for attempting to reduce the hypertension, is to be found in the response of the heart to blood-pressure tests after a measured amount of work. If the heart muscle still has a certain training capacity, then it does not require the compensatory hypertension. The question is always one of adaptability of the heart.

Many agencies reduce the blood tension. Warm, effervescent baths, as used in the natural state at Nauheim, are of most signal value and thousands are benefited annually; under their influence, if judiciously employed, the blood pressure increases to a physiologic maximum and then falls, while the functional capacity of the heart increases by combining the baths with exercise. The effect of iodin in arteriosclerosis is perhaps to be explained by the control which it exercises over the polycythemia, and by its reduction of the viscosity of the blood, rather than to any influence on the anatomic change. The effect of the nitrites is universally acknowledged.

It is in the direction of prevention, however, that we should most earnestly apply our efforts. With our knowledge of the influence of the nervous activity in the causation of the hypertension, with the recognized rôle of excessive waste products in the blood in the same direction, the treatment to be instituted lies more in educating the patient to right living than in the administration of medicine. Avoidance of alcohol and tobacco, moderation in eating and drinking, proper hours of rest, and the elimination of excitement and nerve strain become the principal therapeutic measures. To cultivate repose is thus not only an obligation imposed by good breeding; it is an imperative law of physical health. The study of the blood pressure furnishes the guide as to the efficacy of the treatment, as well as to the time for its continuance. Assuredly it is not possible to agree with Romberg in this statement: "With regard to the measurement of blood pressure we thus have much more accurate information than formerly regarding one of the conditions under which the circulation is carried on. But even as no conclusions as to the efficacy of the circulation can be drawn from the height of the blood pressure, no clue as to the details of the mechanism is found in the composition of the blood pressure and its comparison with the maximum of pressure.

These factors give no measure of the relative participation of heart and blood vessels in the existing changes of the circulation, because the extent of the pulsatile oscillation is influenced not only by the heart but by the tension and elasticity of the vessels, and the tension of the vessels is by no means in a fixed ratio to the maximum of pressure."

The following conclusions seem justified:

1. The routine interrogation of the blood pressure should constitute part of the regular examination of each case.

2. Both systolic and diastolic pressures are necessary in the solution of the problem.

3. Systolic values of more than 130 mm. call for further study.

4. The most important feature of the study of blood pressure is found in its behavior under tests with measured amount of work.

5. Increase of blood pressure is often conservative, and then calls for no interference.

6. A pressure that is at all times above normal may be the only, as it often is the earliest, evidence of arteriosclerosis.

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DISCUSSION.

Dr. W. F. Dutton, Pittsburg: The etiology of hypertonic contraction readily resolves itself into two great divisions, the influence of the nervous system and the composition of the blood. I am not referring to the mechanical conception which would make the arteries mere elastic tubes but to that of living tissue. I have been experimenting with methylene blue. When administered in large doses a retention of the drug in the tissues takes place, owing to a disturbance of renal function, and manifests itself by a diminished excretion of the drug in the urine and feces. After a saturation of the tissues every additional dose is followed by a lessened functional activity. This effect is most apparent in the arteries, and it causes at once a hypertonic contraction and hyperemia of the renal capillaries as well as other pathologic conditions. This method is one to determine the condition of the arteries. The tightening or relaxation of the radial arteries is of clinical importance. The conception is false that the blood-pressure is heightened inside all hypertonically contracted blood vessels only. The two factors of the vessel wall and of the contained blood must be separated. There should be an estimation of the pressure inside of the artery, no matter what the thickness of the walls may be. Nervous reflex, however, may be due to blood impurity.

I do not believe that von Recklinghausen's instrument differs greatly from others. The only thing that can be depended on in its use is the estimation of the resistance of the blood. None of these instruments is perfect. The one, however, that I believe to be the most convenient for the general practitioner's use is that of Riva-Rocci as modified by Cook. The hypertonic, or the sclerotic or atheromatous condition of the arteries is determined by the sense of touch. I believe that the more the general practitioner practices this determination of the arterial condition by the sense of touch, the more perfect he will become—and more so than by the use of these complicated instruments. Arterial sclerosis and atheroma are totally different. Continued stimulation of the arterial wall leads to structural changes, and the fact that a fibrous hyperplasia of the tunica intima takes place shows that the vessel changes are not due to mere nerve influence, but to the blood itself. The intensity of internal changes in the kidneys indicates a presence of excrementitious substances in the blood seeking an outlet. There lies, in part, an explanation of vascular, cardiac, and renal changes. Most text-books endeavor to present the subject in such a way as to make one think that atheroma, sclerosis and hypertonic contraction are one and the same thing. But the surgeon might treat a broken leg for tumor of the brain just as well as the physician might treat atheroma for sclerosis.

Dr. N. S. Davis, Chicago: In certain arterial diseases the arterial wall still retains its power to contract; I have observed that other physicians often overlook this fact. It is a fact that not only healthy normal walls but diseased arterial walls possess this tonicity or power to contract. Furthermore,

many times a diseased arterial wall has a greater degree of tonicity and power to contract, or is more easily stimulated to contract, than a healthy arterial wall. When the artery is compressed the cessation of the flow of blood through it depends not entirely on the pressure of the blood inside the artery, but first on the thickness and tonicity of the arterial wall—in other words, on the rigidity of the arterial wall; and second, on the size of the lumen of the artery. Therefore, when a hemomanometer is applied to an arm and the arteries in it compressed it must be remembered that the compressibility of the artery as well as the pressure of the blood within the artery is being measured. The so-called arterial tension really means the compressibility of the artery.

DR. I. J. WOLF, Kansas City, Mo.: I am especially interested in two points that Dr. Eichberg brought out. First, mental influence is capable of producing a rise and fall in the blood pressure the same as physical labor. This is somewhat akin to what Parlow demonstrated regarding the work of the stomach: that the influence of the mind is as powerful in causing a flow of gastric juice as food itself. The other point emphasized, which I have often noticed in my clinical work, is that the increase in blood pressure is generally compensatory, and that to interfere with this compensatory increase in blood pressure is often dangerous. In such cases, when patients present themselves with a high blood pressure, the question is not so much what the blood pressure is at present, but what it has been before. If it was, for instance, 280 before and the kidneys were doing good work with such a blood pressure, it would certainly be dangerous to try to reduce it, or, if already lowered, to reduce it still further by the use of nitrites or the like. In such cases, though the blood pressure may seem dangerously high, the use of digitalis is more indicated and better able to remove untoward symptoms than the use of blood-pressure-reducing remedies. If, in addition, it is seen that through proper diet and hygiene the patient's blood pressure is not increased beyond the necessities of the case, the patient's welfare is guarded. High blood pressure does not necessarily mean a competent heart; nor does it exclude the use of digitalis.

DR. JOSEPH L. MILLER, Chicago: In many cases of hypertension it is not necessary to institute any treatment. All no doubt will agree that most frequently these cases are due to the condition of the kidneys. The question then arises whether or not a lowering of the blood pressure reduces the elimination from the kidneys. There has been a considerable amount of work done on this subject and on the relation between the lowering of the blood pressure and the elimination from the kidneys. The most accurate work on this subject has shown that, when the blood pressure was reduced from 20 to 25 mm. of mercury, for example, and a careful determination of the elimination of water and solids from the urine was made covering a number of days, there was a decided reduction in the elimination of solids through the kidneys.

DR. S. ST. JOHN WRIGHT, Akron, Ohio: Blood pressure is only one of many pressures which modern methods of living affect. The changed relations existing between patient and physician demand consideration. In these days of meters and instruments of precision, which are now in most homes, the doctor must still be a leader as was the family doctor of old. He can not afford to be without apparatus. For the neurotic and morbidly introspective patient an array of apparatus might be injurious. In such a case the trained finger of the doctor, educated by the sphygmomanometer, will give him a working knowledge of the blood pressure and reassure the patient.

DR. C. F. HOOVER, Cleveland: There are instances in which lowered arterial tension in patients with Bright's disease causes a profound depression. In cases of chronic interstitial nephritis—and this is a fact that I have verified a number of times—with the elimination of a very small amount of urine in twenty-four hours, the use of diuretin or caffein is not followed by diuresis; in these cases there is a high arterial tension and an oliguria. But when I lower the arterial tension there is a marked diuresis. Caffein or diuretin are without effect on the excretion of urine; but when trinitin is administered, lowering the arterial tension, diuresis occurs promptly. Dr. Wright wants a man of modern times and not of the old school. It is the use of the blood-pressure apparatus which teaches clinicians how to estimate blood pressure by touch.

DR. JOSEPH EICHBERG, Cincinnati: It was not with a view of measuring the blood pressure alone that I presented the instrument; but I wish to call attention to its availability in the routine examination of patients. It is not in determining the absolute blood pressure that much can be learned; not from its high or low reading, but from consideration of the blood pressure in connection with the symptoms. In the study of heart disease, the determination of the heart murmur alone really means nothing. After recognizing a certain cardiac murmur a proper analysis must necessarily determine its source. And so with the determination of the blood pressure; in hypertension only a proper study can determine whether the heart, the arteries or the nervous system is at fault. The most important feature in connection with the blood pressure is the determination of the compensatory action of the heart, the adaptability of the heart after a measured amount of exercise. Having determined the blood pressure of an individual at rest and in exercise, one should then note how the heart behaves. If the heart is competent, if fully able to compensate, the high pressure is not a dangerous factor. The criticism of the instrument which I present is well deserved in the main. The instrument of von Recklinghausen has the defects inherent in all instruments of this nature, but the errors are easily controlled. It does depend on the condition and tension of the metallic spring; but this element in error can be checked at any time by comparison with a standard gauge. The instrument is portable and can be readily carried to the bedside of a patient. It enables one to obtain promptly both the diastolic and the systolic pressure. It has manifest advantage over other instruments that require the use of mercury. Erlanger's instrument can not be carried around; its place is in the office or in the hospital ward.

UTERUS AND STOMACH.

THEIR ANATOMIC, PHYSIOLOGIC AND PATHOLOGIC RELATIONSHIP.*

FRED J. TAUSSIG, M.D.

ST. LOUIS.

In no specialty do we hear so much of reflex symptoms and reflex neuroses as in gynecology. Those of gastric origin are an especially prolific source of local gynecologic treatment and, as a recent article by Reder[1] indicates, of operative interference also. From a purely clinical standpoint, hardly any two abdominal organs stand in closer relationship than the stomach and the uterus. Thus we have the nausea and loss of appetite during menstruation, the vomiting and craving for certain special foods during pregnancy, the various gastric disturbances accompanying the menopause and the frequent association of gastric and gynecologic diseases. This has led many writers to believe that there must be some special nervous connection between these two organs. In presenting this subject, my motive is to show once more how much is hypothesis and how little is fact in this field of study. I was also able to collect forty-four additional observations of the association of gastric and gynecologic symptoms, taken partly from the clinical records of the Washington

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Trivial Pathologic Conditions of the Uterus and Adnexa Considered as Causes of Severe Gastric Disturbances: Amer. Jour. Obst., 1905, lii, 667-74.

University Hospital and partly from the private histories of Dr. A. E. Taussig and myself.

ANATOMY OF THE PARTS.

According to Morris,[2] the sympathetic system can be divided into:

1. The two sympathetic trunks lying proximal to and parallel with a vertebral column.

2. The great prevertebral plexuses, of which there are roughly three, the cardiac, the solar and the hypogastric, each of which is subdivided.

3. The numerous terminal ganglia and plexuses situated either within or close to the walls of the various organs.

4. The trunks and rami connecting the ganglia with each other and thus contributing to the plexuses, or connecting the ganglia with other nerves, or with the organs with whose innervation they are concerned. These connecting trunks may be divided into central branches connecting the sympathetic with the cerebrospinal and central systems; associative trunks, those connecting sympathetic ganglia on the same side of the body; commissural branches, connecting ganglia on the opposite sides of the body; and terminal or peripheral branches, those which pass from the ganglia to their final distribution.

The nerve supply of the stomach comes for the greater part from the sympathetic system by way of the solar plexus. There are some contributing fibers from the vagus. The nerve supply of the uterus comes from the sympathetic system by way of the hypogastric plexus and the prevertebral ganglia. Both organs possess within their coats a network of sympathetic ganglia. The connection of these two organs by means of the sympathetic system with the cerebrospinal system seems certain. Just in what way and along what path this connection takes place is, however, still in doubt.

There is lacking positive evidence of any anatomic connection between sympathetic nerve fibers and the ganglionic cells of the central or spinal nervous system. There is, therefore, as yet no anatomic basis for the occurrence of a reflex impulse through the sympathetic system.

THEIR PHYSIOLOGY.

If there are some hazy points in the anatomy of the sympathetic, there are even more in the physiology of that system. The occurrence of certain phenomena, apparently reflex in origin, can not be denied. We have, for instance, the stimulation of uterine contractions through irritation of the breasts. The explanation of such a sympathetic reflex is a very difficult matter. Langley[3] has shown that these are not reflexes in the usual sense of the word. By employing the degeneration method, the fibers carrying the excitation could be found to have their trophic center neither in the ganglion itself nor in its periphery. He explains these so-called axon reflexes on the basis of an impulse traversing backward along a collateral branch of a nerve fiber to a sympathetic ganglion cell, and being thence transmitted to the suitable organ. We know that both stomach and uterus may be cut off entirely from their connection with the central and sympathetic nervous systems and still be able to functionate perfectly. Kurdinowski[4] has thus cut off the uterus of rabbits from all nerve supply and brought about automatic uterine contractions by the use of various irritants. In a similar way Cannon[5] and Cushny[6] have shown by *x*-ray observations of the stomach that after section of the greater and lesser splanchnic nerves in cats, the movements of the stomach continued as before. Nevertheless it seems probable that these organs do not ordinarily functionate by means of their automatic system, but that this action takes place through the sympathetic nerve trunk.

MENSTRUATION.

It is not an easy matter to decide whether the phenomena of menstruation, of pregnancy and the menopause should be included in a study of physiology, for the steps from the normal to the abnormal are so gradual as to make it difficult to decide where to draw the line between proper and faulty functioning. Considering first the gastric symptoms attending menstruation. In some persons, these are not present; in others, apparently in equally good health and presenting on careful examination no evidences of gastric disease, we find at the menstrual period pronounced nausea and loss of appetite. We know that at this time there are usually decided changes in blood pressure, occasionally fever of 1 to 2 degrees and various disturbances of the nervous system.

Gastric analyses have been made in a series of cases by Elsner,[7] Kehrer[8] and Kretschny.[9] I, also, have made three observations in this point. They are as follows:

CASE 1.—*History.*—M. M., colored, aged 19, single. Menstruated March 4-10, 1908. Stomach normal except for occasional nausea. No objective findings. Stomach examination after Ewald breakfast on March 6 (during flow) showed total acidity, 57; free hydrochloric acid, 18; no mucus. Examination on March 15 showed total acidity, 30; free hydrochloric acid, 12; no mucus.

CASE 2.—*History.*—M. H., colored, aged 27, married, menstruated Feb. 11-16, 1908. On Feb. 6, 5 days before flow, stomach analysis showed total acidity, 47.5; free hydrochloric acid, 35.5; no mucus. On Feb. 13, during flow, total acidity was 87; free hydrochloric acid, 42.

CASE 3.—*History.*—T. S., colored, aged 21, single, menstruated March 5-8, 1908. Stomach analysis, March 4, showed total acidity, 40; free hydrochloric acid, 12. On March 13, total acidity was 33; free hydrochloric acid, 8; no mucus.

Elsner[7] in his fourteen cases found, as a rule, some increase in the total acidity and free hydrochloric acid just before the onset of menstrual bleeding and during the flow a subacidity. Kuttner[10] and Kehrer[8] found a subacidity alone. Kretschny[9] found delayed digestion. The total number of cases, including mine, that have been examined are less than thirty.

It is evident that on such meager data we are not justified in drawing any positive conclusions. Patients do not readily submit to such repeated stomach analyses unless they have decided stomach symptoms. Another factor making the results thus far of doubtful significance, is the inevitable inaccuracy of all methods of stomach analyses. This has again been brought out recently in an article by Drs. A. E. Taussig and Rush.[11]

2. Human Anatomy, 1907.
3. Jour. Physiol., 1894, xvi.
4. Klinische Wuerdigung einiger experim. Ergebn. bez. d. Physiologie der Uteruscontraction: Archiv. f. Gyn., lxxviii, 34-51.
5. The Alimentary Canal After Splanchnic and Vagus Section: Jour. Physiol., xiii, 22.
6. Movements of the Uterus: Jour. Physiol., xxxv, 1.
7. Der Einfluss der Menstruation auf die Thaetigkeit des Magens: Arch. Verdauungskrankh., v, 467.
8. Die Physiol. u. Patholog. Beziehungen der weiblichen Sexualorgane zum Tractus Intestinalis: Berlin, S. Karger, 1905.
9. Menstrualmagen: Deutsch. Archiv. f. Klin. Medizin, 1877.
10. Ueber Magenblutungen und deren Beziehungen zur Menstruation: Berliner klin. Wchnschr., 1895, pp. 7-9.
11. The Clinical Importance of the Uneven Distribution of HCl in the Stomach Contents: Boston Med. and Surg. Jour., Jan. 16, 1908.

To consider the stomach disturbances of menstruation as reflex seems most unnecessary. Recent animal experiments (Halban,[12] Fraenkel,[13] Knauer[14]) point almost conclusively in favor of the view that menstruation results from ovarian secretions circulating in the blood.

A most careful study of the condition of the stomach during pregnancy and the puerperium was made by E. Kehrer.[8] Six hundred and fifty examinations of stomach contents after an Ewald breakfast were made in pregnant women and in no instance was any bad effect on the pregnancy noticed as a result of the introduction of the stomach tube. In the first six months of pregnancy he found the secretion of hydrochloric acid as a rule somewhat lessened. In the last few months of pregnancy, likewise, he found some diminution both in the total acidity and the amount of hydrochloric acid. The motility of the stomach during pregnancy, as a rule, was found to be unchanged. In the first few days of the puerperium there was a diminution in the secretory function of the stomach corresponding to the loss of blood during labor. When a severe hemorrhage had occurred the diminution of gastric juice was very marked. He consequently advises a somewhat restricted diet in the first week postpartum, since this would correspond to the capacity of the stomach for digesting food.

VOMITING OF PREGNANCY.

That exaggerated disturbance of the stomach during pregnancy known as hyperemesis was formerly supposed to be purely a nerve reflex. Now we are coming more and more to regard the nervous cases as the exception and the toxemic cases as the rule.

THE STOMACH AT THE CLIMACTERIC.

When we consider the stomach symptoms arising at the time of the menopause we are practically in the realm of pathology, for ordinarily disturbances at this period are so slight as hardly to deserve special mention. Where more pronounced, they are usually attended by nervous disorders. It is difficult to tell in a given case to what extent the gastric symptoms are due to this nervous condition, to what extent they result from secretory intoxications, and to what extent they are reflex neuroses. A very considerable number of my forty-four cases (23 per cent.) were in women at the time of the menopause.

PATHOLOGY OF THE UTERUS.

Among the pathologic conditions of the uterus that are most frequently associated with gastric disturbances should be mentioned first of all, retroversion. Of Winckler's[15] total of forty-one cases, ten had a retroversion. Sommer[16] gives gastric analysis in 11 retroversion cases. Panecki[17] in 15, Kehrer[8] in 15, Frank[18] in 6.

In my list, there were seven instances of retroversion with gastric symptoms. The findings of these various investigators lack uniformity. In my own list, there were five with subacidity or total absence of hydrochloric acid and two in which the findings were approximately normal. Taking the average of the sixty-five cases thus far examined, we find that in about half of them the hydrochloric acid was unaltered in amount. When a change was noticed it was usually in the direction of diminished amount of hydrochloric acid. Many interesting cases are on record in which a correction of a malposition of the uterus resulted in a sudden and complete cessation of the stomach disturbances. Kehrer,[8] Gellhorn,[19] Eisenhart,[20] Hewitt[21] and others have reported such occurrences and believed that they could absolutely exclude the possibility of suggestion as a factor in the relief of the gastric symptoms. Winckler[15] and Sommer,[16] on the other hand, saw patients in whom, although the uterus was brought forward and kept in perfect position by means of a pessary, the gastric disturbances persisted. In fact, in one of Sommer's patients, the gastric symptoms were distinctly aggravated after the uterus was brought forward. The following case is from my own records:

CASE 4.—*History.*—Mrs. L. W., aged 38, had had two children and no miscarriage. She complained of premenstrual distress, dysmenorrhea, together with nausea, eructations and pain in the epigastrium. The symptoms dated back to her last childbirth.

Examination.—Examination showed a gastroptosis and retroversion of the uterus. Examination of the stomach contents made June 20, 1901, showed no abnormality in gastric secretion, but an impairment of motility.

Operation.—On Oct. 2, 1901, Alexander's operation for the relief of retroflexion was performed, with the hope that her stomach symptoms would likewise be improved. This was found not to be the case.

Result.—Although the position of the uterus was corrected by the operation and the gynecologic symptoms eliminated, her former gastric symptoms returned within a few months and were only permanently relieved by treating the stomach condition itself.

CASE 5.—*History.*—Mrs. M. S., aged 47, complained mostly of dyspeptic symptoms. No genuine gastritis was found, only a gastroptosis, and a movable retroversion.

Treatment and Result.—The position of the uterus was corrected and a pessary put in place, but without any influence on the gastric symptoms or on the findings on gastric analysis.

A large number of these cases of retroversion in which there are symptoms of dyspepsia will be found in women with general splanchnoptosis. Here we are certainly not justified in speaking of reflex neuroses, for both stomach and uterine symptoms arise from one common cause, the relaxation of their ligamentous attachments. The proper treatment for such a condition must, therefore, not be localized to one organ, but should concern itself in an effort to restore to the abdominal walls and pelvic floor their former strength. The following is a case in point:

CASE 6.—*History.*—Mrs. C. G., aged 47, had had three children, and owing to insufficient attention in the puerperium, developed a gastroptosis and retroversion of the uterus. That there was no special disease of the stomach was evidenced by the physical examination and by the analysis of the stomach contents which showed a total acidity of 56, free hydrochloric acid, 29; no mucus present.

Treatment and Result.—An effort to correct the retroversion by massage and pessary caused an aggravation of both pelvic and gastric symptoms. These symptoms were back-

12. Ovarium und Menstruation: Verhandl d. Deutsch. Ges. f. Gyn., 1901, ix.
13. Ueber die Funktion des Corpus Luteum: Archiv. f. Gynaek., lxviii, 438-540.
14. Ueber Ovarientransplantation: Archiv. f. Gyn., lx, part 2.
15. Ueber die Ergebnisse von Magenuntersuchungen bei Frauenleiden: Berl. Klin. Wchnschr., 1905, pp. 1041-1044.
16. Ueber den Zusammenhang Dyspeptischer Beschwerden mit Erkrank d. weibl. Geschlechts-apparates: Centr. f. Inn. Med., 1902, p. 217.
17. Therapeut. Monatsch., 1892, p. 79.
18. Archiv. f. Gynaek., 1894, xlv.
19. Gynecologic Diseases Without Local Symptoms: St. Louis Courier of Med., July, 1902.
20. Die Wechselbeziehungen zwischen internen und gynaekol. Erkrankungen; Stuttgart, 1895.
21. Diagnosis, Pathology and Treatment of Diseases of Women: Erlangen, 1869, p. 335.

ache, leucorrhea, anorexia and occasional paroxysmal pain in the epigastrium. After five weeks' rest in the hospital, under a Weir-Mitchell treatment, both gastric and gynecologic symptoms were relieved, in spite of the fact that the uterus was still in marked retroversion.

It will be evident, however, that when such an infinite variety of interpretations are possible, it is wrong to emphasize these therapeutic experiences for the explanation of any pathologic relationship between uterus and stomach.

Other gynecologic diseases, such as uterine myomata, are also frequently found associated with stomach disturbances. There is not time to consider them separately nor do the observations thus far recorded justify any special deductions. I append my own records in the accompanying table. Beside the seven cases of retroversion already cited, there were thirteen other cases in which careful stomach analyses were made. It is noticeable that most of them show a subacidity and absence or diminution of free hydrochloric acid.

Besides these twenty cases, I found data concerning twenty-four other patients in whom a combination of gastric and gynecologic symptoms was found, but without complete records concerning stomach analyses. Of these additional twenty-four women, nine had relaxed abdominal walls with splanchnoptosis, six were entering the menopause, five had chronic pelvic inflammation and the remainder had varying complaints. Winckler also found hypochlorhydria more common, and in eighteen out of thirty-one cases a gastroptosis was present. A large percentage of the patients in Sommer's twenty-three cases had splanchnoptosis with malposition of the uterus. Both Winckler and Sommer obtained the best results by treating the stomach directly.

The main point to determine in this question is whether or not we are justified in classing the majority of these cases as reflex neuroses. Windscheid[22] urges strongly limiting the use of this term. Some limitation has already been made, for was not the phenomena of Basedow's disease

22. Ueber genitale Reflexneurosen: Centralbl. f. Gyn., 1901, pp. 1316-1319.

TABLE OF AUTHORS' CASES ILLUSTRATING ASSOCIATION OF UTERUS AND STOMACH.

No.	Patient.	Age.	Children.	Menses.	SYMPTOMS. Gynecol.	SYMPTOMS. Stomach.	DIAGNOSIS. Gynecol.	DIAGNOSIS. Stomach.	Last Menses.	GASTRIC ANALYSIS. Motility.	GASTRIC ANALYSIS. Secretion.	REMARKS.
1	T. S.	21	None	Regular 5-7 days, painful.	Dysmenorrhea, pain in lower abdomen.	Nausea, bloating.	Retroposition of uterus, cervix stenosis.	Gastric neurosis	Mar. 2-8.	Well digested, no fragments.	Total Acid. 33, free HCl 8.	Gastric symptoms not relieved by curettage. Analysis Mar. 15.
2	M. M.	19	None	Regular 6 days, painful.	Dysmenorrhea	Nausea after eating.	Retroversion.	Normal	Mar. 4-10	Well digested, no fragments.	T. A. 30, free HCl 12	Analysis Mar. 15.
3	M. H.	27	2 Abortions	Irregular 4 days, painful.	Pain in lower abdomen.	Pain in epigastrium af. eating.	Chronic pelvic inflam.	Possibly nleus ventriculi.	Jan. 15-20	No mucus, 200cc left.	T. A. 47.5, free HCl 35.5.	Analysis Feb. 6.
4	M. S.	47	No Pregnancy	Regular but scanty.	Backache, dragging in pelvis.	Anorexia, bloating, eructations	Retroversion, menopause.	Gastroptosis	.....	50cc. left, little mucus.	T. A. 13, free HCl 0	Wore pessary but no relief of stomach symptoms.
5	M. A.	24	One	Regular 5-7 days, some pain.	Amenorrhea, frequent urination.	Eructations, epigastric pains.	Pregnancy, 3 months.	Gastritis	3 months previous.	Poorly digested.	T. A. 10, free HCl 0	Analysis made when 3¼ months pregnant.
6	M. S.	3	No Pregnancy	Irregular, scanty	Pain in rectum, backache.	Fullness aft. eating, ructus.	Atrophia uteri	Gastritis	1 year previous.	Well digested mucus.	T. A. 33, free HCl 15	
7	C. W.	24	One	Regular 4-5 days, no pain.	Pain in hypogastrium.	Epigastric, distress aft. meals	Salpingitis, retroversion.	Gastritis	Nov. 8-12	150cc. left.	Acid present, free HCl 0.	Analysis Nov. 16.
8	C. M.	24	One	Regular 5 days, some pain.	Pressure in pelvis.	Nausea, vomiting.	Parametritis posterior.	Gastritis	June 6-10	25cc. left, poorly digested.	Acid present, free HCl 0.	Analysis June 14.
9	B. Q.	34	One	Regular, scanty, painful.	Backache, leucorrhea.	Pyrosis, eructations.	Endometritis lac perineum.	Gastric neurosis	.....	250cc. left, well digested.	T. A. 45, free HCl 32	After curettage and perineorrhaply gyn. symptoms gone but gastric as before.
10	S. P.	48	Twelve	Irregular 4 days	Pains in hypogastrium.	Vomiting, epigastric pain.	Endocervicitis menopause.	Gastroptosis	.....	50 c. left, mucus poorly digested.	T. A. 80, free HCl 60	
11	J. W.	25	One	Regular 3 days, slight pain.	Leucorrhea, pain in lower abdomen.	Nausea, fullness	Salpingitis	Gastritis	Feb. 11-14	50cc. left, poorly digested.	Acid present, free HCl 2.	Analysis Feb. 21.
12	C. G.	47	Three	Too frequent, 3-4 days.	Leucorrhea, backache.	Epigastric pain, vomit., anorexia	Retroversion, Endometritis	Gastroptosis	Mar. 14.	45cc. left, no mucus.	T. A. 56, free HCl 29	
13	E. H.	33	Two	Too frequent, 7-8 days.	Pain in lower abdomen.	Nausea, epigastric pain.	Myoma uteri, ovarian cyst.	Gastritis	.....	25cc. left, well digested.	T. A. 22.5, free HCl 10.	
14	E. S.	36	No Pregnancy	Irregular, 1-2 days.	Dysmenorrhea	Vomiting bad breath.	Dysmenorrhea menopause.	Gastritis	2½ mths. before.	.....	T. A. 10, free HCl 0	
15	M. S.	24	One	Regular 2-3 days, no pain.	Leucorrhea, backache.	Nausea, eructations.	Retroversion.	Subacute gastritis	.....	120 c. left, poor digested	T. A. —, HCl 10	
16	I. G.	38	No Pregnancy	Irregular 3 days	Hot flushes	Fullness in epigastrium.	Menopause, fibroid uterus	Gastritis	2 months previous.	Well digested.	T. A. 22, free HCl 10	
17	W. A.	40	No Pregnancy	Irregular, scanty	Leucorrhea	Vomiting, epigastric pain.	Vaginitis	Gastric neurosis	April 1-2	100cc. left, well digested.	T. A. 72.5, free HCl 47.	Analysis made Apr. 1, hysterical.
18	P. L.	21	No Pregnancy	Profuse, painful	Dysmenorrhea, pain in r. inguinal region	Bloating, ructus, nausea.	Chronic pelvic inflam.	Gastroptosis	.....	100cc. well digested.	T. A. 49, free HCl 38	
19	T. H.	30	Four	.....	Leucorrhea	Nausea, epigastric pain.	Endocervicitis	Gastritis	.....	100cc. left, well digested.	T. A. 55.5, free HCl 41.5.	
20	G. G.	33	Three	Reg., prolonged, not painful.	Leucorrhea, menorrhagia.	Pyrosis, bl ating	Endometritis, retroversion.	Gastritis	.....	100 c. left, no mucus.	T. A. 20, free HCl 0	

formerly considered to be purely reflex, and did we not at one time cauterize the clitoris as a means of curing hysteria? Few of us now employ nasal cocainization for the relief of dysmenorrhea. We have come to consider chorea gravidarum and hyperemesis not as reflex, but primarily as toxic conditions. No doubt some think we are going too far. I believe we have not gone far enough. I think Windscheid is right in demanding four postulates for the diagnosis of a reflex neurosis. They are:

REFLEX NEUROSES.

1. There must be demonstrated a direct nerve path from the impulse center to the reflex center. This is a difficult matter where that path is *via* the sympathetic. But waiving this point, to say, as Tuzskai[23] does, that a specially close nerve connection exists between stomach and uterus is not justified by the facts. Certain viscera are tributary to the solar plexus and certain ones to the hypogastric plexus, but we know of no special fibers running from the uterus to the stomach or *vice versa*.

2. The next postulate of Windscheid is that with the abatement of the source of irritation (Reizcentrum) there should also be a disappearance of the reflex symptoms. That this has apparently taken place in a number of the cases reported is true, but in the majority of them the element of suggestion can not be eliminated. We may not have told our patient that the position of the uterus was corrected, but something in the voice and attitude of the physician often convinces her that some new (and, therefore, successful) procedure has been employed. Furthermore, the cases in which gynecologic treatment has been successful in the relief of stomach symptoms would be very apt to be published, whereas the cases of failure would never see daylight.

3. The third requirement is that the organ in which the reflex symptoms occur should not previously be diseased. In other words, how are we to tell that the diminution of free hydrochloric acid or the decreased gastric motility was not present before the onset of the genital condition? This will be capable of proof in but very few cases. That the gastric symptoms did not occur until after a childbirth or miscarriage is not enough, for pregnancy, as we know, affects not merely the uterus, but the entire organism. Moreover, occasionally a reflex gastric neurosis proves at autopsy to be an ulcer or cancer or other objective gastric disease.

4. Finally, Windscheid claims for the proof of the reflex neurosis that the two organs, that of the impulse center and of the reflex center, must not both be affected by the same general disease?

What impressed me most in my own series of cases was the frequency with which I found such a general cause, splanchnoptosis, neurasthenia, menopause, etc. I have already shown how the frequency of gastric disturbances in menstruation and pregnancy can be explained on the basis of an intoxication. And here we must remember that the organ that is most sensitive to intoxications of all sorts is probably the stomach. How many of our infectious fevers begin with nausea and vomiting. It should not surprise us, therefore, if secretory disturbances of the ovary or placenta, acting oftimes as toxins, produce likewise primarily gastric disturbances. These can not, therefore, be called reflex symptoms since they are due to a general cause.

If we exclude, first, the cases in which physical conditions in the abdomen through relaxed walls and pelvic floor have caused gastric and uterine symptoms; second, the cases in which the condition of the blood, as in anemic or chlorotic individuals, causes altered function on the part of both the stomach and uterus; third, the cases in which there is hysteria, neurasthenia or a general neurotic temperament; and, finally, the cases of toxemia of one sort or another, what is there left to call reflex neurosis? A few cases, doubtless, will be found, but they will, I believe, be in ever diminishing number as our pathology is enrichened and our methods of diagnosis made more accurate. Above all, let us hope that anatomists and physiologists will in the coming years tell us a little more about the sympathetic system. Until this time, we should not be too positive in our assertions regarding reflex neurosis and be doubly conservative in advising operative interference for the relief of such conditions.

DISCUSSION.

DR. J. H. CARSTENS, Detroit: Some of the most troublesome cases to deal with are the very cases in which there are stomach troubles and nervous symptoms of various kinds and, although I am radical ordinarily in operations and believe that in certain cases operation ought to be done quickly, these are the cases in which one can not be too conservative. I have the greatest trouble in convincing patients that they should not be operated on when they believe some wonderful results are possible in this kind of cases. But I know that there are very few such cases in which I can do good. It is sometimes possible to do some good in the way of fixing the uterus, or a kidney that is loose, but in the majority of cases I warn against operation. These patients are born wrong. Their whole nervous system is wrong. It is not medical or surgical treatment that they need, but physical. These cases must be built from the ground up. Months and months of systematic physical exercise are required for this work. By much time and attention in this respect one can do wonderful work in developing the muscles and ligaments so that the abdominal viscera will keep reasonably in place and give them relief.

DR. D. H. CRAIG, Boston: Two years ago I read before one of the divisions of the Massachusetts Medical Society a paper on the hysteroneuroses, so-called, with their relation to a thorough physical examination of patients. The general practitioner in an entirely impersonal way is admonished, advised and criticised at every meeting of specialists, and yet, we all realize that the general practitioner can teach us as much as we can teach him. But the criticism that I make of the general practitioner is that, largely through lack of time, he is too chary of careful physical examination of patients. He is too prone to make a diagnosis on the symptoms given by the patient, and there is no diagnosis more frequently given under such circumstances than that the condition is due to reflex influences. Five or six years ago I instituted the requirement that every patient must be examined physically from the chin down. I do not think that the examination of the organs of special sense come into these cases at all. Under that routine it was perfectly surprising to see the way in which the reflex conditions diminished and to note the appearance of actual physical foundations for what had seemed to be reflex conditions. I believe there are many reflex conditions from uterine and ovarian conditions, but many symptoms loosely classed as reflex will under close examination show a physical cause.

DR. F. J. TAUSSIG, St. Louis: I suggest that we gynecologists work hand in hand with internists, more immediately the men who are taking up the study of stomach diseases, so that we can arrive at some more definite conclusion concerning the subject. The gap still to be filled in regarding the condition of the stomach during menstruation, during the menopause and to a certain extent, during pregnancy, can be filled in only by the working of gynecologists in unison with those fitted to make careful stomach analyses.

23. Ueber den Zusammenhang zwischen Uterus und Magenleiden: Monatsschr. f. Geb. u. Gyn., xii, 145.

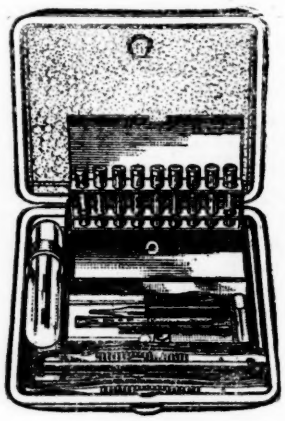
Clinical Notes

A POCKET EMERGENCY OPHTHALMIC TREATMENT CASE.*

WALTER L. PYLE, A.M., M.D.
PHILADELPHIA.

Having in mind the frequent necessity for a complete pocket emergency ophthalmic treatment case, always ready to be placed in the coat pocket when answering an urgent and unexpected call, I have designed and had made the outfit herewith described. The case is made of corrugated aluminum, opening laterally and in appearance resembling a cigarette case. It is very strong and will bear considerable rough handling. The edges are reinforced with steel plates. All the corners are carefully rounded and it is sufficiently small to enable the physician to carry it, if necessary, even in the vest pocket, being 3½ inches long, 3 inches wide and three-quarters of an inch thick. The contents of the main portion of the case are as follows:

Nine small vials containing compressed tablets as follows: Pilocarpin, cocain, dionin, atropin, eserin, adrenalin, fluorescin, homatropin and mercuric chlorid.



The pocket emergency ophthalmic treatment case designed by Dr. Pyle.

These tablets are carried in a suitable rack, which by releasing a spring is raised in such manner as to bring the vials into a convenient position for withdrawing the desired tablet.

In addition to the foregoing the case also contains:

1 Glass pestle and mortar.
1 Hard rubber stick (for handling by friction the compressed tablets).
1 Pipette.
1 Camel's hair brush.
1 Glass-stoppered bottle of distilled water.
1 Combination corneal spud and thin corneal knife (Graefe).
1 Fine iris-forceps.
1 Fine iris-scissors.
1 Concave retinoscope.
1 Flint-glass condensing lens. (This lens, while testing to a 16 diopter focus, owing to its being made of flint glass, has been mounted on a 10-diopter curve, thereby reducing materially its thickness.)

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

A NEW PERCUSSION HAMMER.

ROBERT N. WILLSON, M.D.
PHILADELPHIA.

The accompanying illustration illustrates a percussion hammer or plessor that has been gradually evolved from a sense of need and from the inability to find what I wanted on the market. For years I have demonstrated to my own satisfaction and to that of my students the fact that by means of the proper use of the plessor and pleximeter an accuracy of outline can be attained in the examination of the lungs, heart, and other organs that is impossible with finger percussion or by any other means short of the tuning fork and stethoscope. No one plessor has been satisfactory, either with respect to balance, weight or durability. Most of the instruments on the market are fitted with friable rubber handles so long as to be clumsy, and as to invite just what should be forbidden instead of encouraged—a forcible stroke. Not one is designed to promote delicacy

A new percussion hammer.

of perception of sound, through thorough comfort in its use. It is believed that the all-metal instrument here illustrated is not only practically indestructible, but is calculated to encourage a gentle method of percussion, since a hard stroke with its short handle is next to impossible. The balance is perfect, and at the same time the head of the plessor is sufficiently heavy to produce the desired sound by its own fall. The resulting jar is almost nil to the patient, whereas the note obtained by the impact of the leather tip on either the finger or the ivory pleximeter is more resonant, more sharply defined, and more clear than that obtained by finger percussion. The sense of resistance is preserved to those who desire to make use of it by the employment of the finger as the recipient of the stroke.

1708 Locust Street.

Special Article

PLAGUE IN CALIFORNIA AND THE ANTI-PLAGUE CAMPAIGN.

(By Our Special Commissioner.)

In beginning this report to you, supplemental to that closed Nov. 30, 1907, and published in THE JOURNAL, Dec. 14, 1907, it may be well to outline, briefly, the conditions that existed at that time. Human plague was first noted in San Francisco in March, 1900, and existed there until Feb. 29, 1904, on which date the last verified case for some three years was noted. It appeared again May 27, 1907. Verified cases had occurred in several towns in Contra Costa County and in Oakland, Alameda and Berkeley, and it was surmised as far back as 1901 or 1902 that the ground squirrels in the counties of Alameda and Contra Costa had become infected with plague

In spite of the urgent request of the U. S. Public Health and Marine-Hospital Service officer in charge in 1903, and in spite of the equally urgent request made in 1906 by the governor of California, the secretary of the treasury would not allow the appropriation of a few thousand dollars for the purpose of determining whether or not the squirrels were infected and would serve, in consequence, to maintain a constant focus of infection. It was not until the present year that funds for this purpose were available—five years after the importance of determining the point had been fully pointed out—and the result has confirmed the supposition. Three ground squirrels infected with the plague have been found in Contra Costa County.

CONDITION OF SAN FRANCISCO.

It is necessary to understand the condition of the city at the time that Dr. Rupert Blue, passed assistant-surgeon, U. S. Public Health and Marine-Hospital Service, was detailed as sanitary officer in charge of plague work in San Francisco, about the middle of September, 1907. The parks and open squares of the city had been utilized for the refugee cottages erected by the relief committee and housed thousands of those who had been made homeless by the fire of April, 1906. Vacant lots had been appropriated by various groups of individuals as private camps and huts of old box-wood, sheet iron, scraps of all kinds had been erected. In all cases these shacks were built on the ground, only being raised therefrom when the conformity of the surface required blocking up some portion of the floor to make it level. Thousands of persons were thus living under the most insanitary conditions; sewer connections were uncommon in these camps, and in many instances where they existed the sewers were destroyed or blocked so that the possibly existing connection was largely theoretical.

Garbage and refuse were dumped into boxes or barrels and then into the nearest vacant lot. The location of some of the camps could be detected by the sense of smell at a distance of several blocks. The choicest sort of rat runs, and rat-abiding places were furnished beneath the floors of these shacks, and an abundant food supply was always at hand. Rats, flies and fleas were so abundant as to have excited much comment from the general run of citizens even before there was any question of the existence of plague. Stables had been hastily erected throughout the burned district and in them grain and hay were kept on poorly constructed wood floors, thus adding to the delectable possibilities for rat habitation and food. In practically every stable in the city numbers (sometimes as many as 75 to 100) of dead rats were swept out every morning.

Even with the announcement of the presence of plague, nothing to speak of was done. The incompetent board of health "blew up"; they seemed to have no idea what to do and would enact something to-day only to undo it to-morrow. The people were apathetic or antagonistic and the press absolutely antagonistic.

Dr. Rupert Blue and his executive officer, Dr. Colby Rucker, arrived about September 15 and by the end of that month had pretty well mapped out the situation and their campaign. They had the support of the newly appointed board of health and of the board of supervisors, the latter body allowing $30,000 a month for the months of September, October and November, 1907. The financial side of the work will be referred to in detail later. Until about the middle of January, however, the work was progressing but slowly and in the face of public opposition, ignorance or intolerance and of the antagonism of the press. In January the situation changed.

AROUSING THE PUBLIC.

Some members of the Merchants' Association became impressed with the serious importance of existing conditions and a general public meeting on the floor of the Exchange was called. A committee of public health was formed, called the Citizens' Health Committee, and within a few days very active work was under way. The activity of the Citizens' Health Committee was directed in three general ways—the education of the public, the raising of funds and the enforcement of sanitary ordinances.

In the work of educating the public, justly considered to be of the most vital importance, no pains were spared. A corps of some twenty-five lecturers was organized and from eight to a dozen meetings were held daily. All classes of people were gathered together and told the gravity of the situation and the necessary things to be done. Employers called their employés together and explained the matter carefully. Women's clubs, lodges, school teachers and school children; commercial bodies and labor unions; merchant prince and scavenger—to all was preached the one gospel: keep all food away from the rat and clean up the city. All but one of the daily papers were converted from the policy of denial and ridicule and published from day to day the matter which was prepared by the regularly employed press agent of the Citizens' Health Committee. One paper, *The Chronicle*, has never admitted the existence of plague and has constantly and persistently ridiculed the whole anti-plague fight.

The awakening was something wonderful to behold. Everywhere one went he could hear nothing talked of but plague and rats. A large variety of circulars were printed, mostly short and concise, giving varied information. One, for instance, was a card perforated at the top so that it could be hung on a tack or nail, and this was given to every householder; it was given to the children in the schools, with instructions to take it home to their mothers; it was given to all employés, with instruction to see that it was hung up in the kitchen. It gave short but clear information as to how to keep all food and garbage away from rats. A full rat is hard to catch, but a hungry rat falls an easy prey to the rat-catcher. Many members of the Citizens' Health Committee, very busy men, practically abandoned their own business for weeks at a time and devoted day and night to this work.

The board of supervisors cooperated in every way in their power. Special ordinances were enacted whenever requested. The building laws were amended to provide for rat-proof basements. The keeping of animals within certain restricted districts was the subject of another ordinance, and the scavengers were compelled to abide by wisely formulated regulations. So much for the general and public work; it was good work and carefully and tactfully directed and carried out. Now let me present the more intimate scientific work, done quietly but most effectively.

PLAN OF THE WORK.

Without entering into the minute details of an anti-plague campaign, the broad plan of the work may well be outlined and carefully considered in view of the unexpected result. Two main factors have forcibly presented themselves as being of the first importance in plague eradication:

1. The creation of a perfect system and its rigid enforcement.

2. An infinite attention to detail.

Nothing is too unimportant or too insignificant to demand attention. Before discussing the plan of campaign formulated and carried out by Dr. Blue, in charge, and his executive officer, Dr. Rucker, and in order the more definitely to emphasize the valuable results of this campaign, let me call attention to two points:

First, the chronologic table of cases of human plague:

1907.	
May	1
August	13
September	55
October	34
November	41
December	13
1908.	
January	2
None since January.	

Second, of 109 rats examined for plague in August, 1907, 4.58 per cent. were found to be plague infected. Of 12,433 rats so examined in August, 1908, only .009 per cent. were found infected.

The objects to be accomplished were the following:

1. Extermination of rats.

2. Prevention of the entrance of rats into human habitations.

3. Early discovery of cases of plague in human beings (and in rats).

4. Prevention of the spread of the disease by human beings.

5. Destruction of infection.

6. Education of the general public.

It has already been seen that the last objective was secured and how. To secure the other desired results, the following general plan of operations was put into effect. The general headquarters, the whole, of course, under the direction of Dr. Blue, was divided into three departments: 1. Statistics; 2. personnel and accounts; 3. laboratory. The first two have been under the direction of the executive officer; the last under Dr. Stansfield, and after his resignation under Drs. Fox and McCoy.

The board of health appointed inspectors of the dead and made a rigidly enforced order that no dead body should be removed from the place of death until a proper certificate had been given by the inspector, stating that the cause of death was not plague or in any way suspicious. To provide for the proper care of human cases of plague, and also to secure due supervision of contacts and suspicious cases, an isolation hospital was built, on the cottage plan, the whole surrounded by a rat-proof fence of galvanized iron eight feet high placed on a cement base sunk three feet into the ground. In addition, an inverted trough was placed on the inside of the fence at the top so that if a rat should enter he could not escape.

There was a little delay in getting the laboratory in good working order, but by the early part of October it was ready and shortly afterward it was enlarged so that for many months it has been possible to examine every rat caught or sent in.

SANITARY DISTRICTS.

The city was then divided into thirteen sanitary districts, each with its headquarters office, its own sanitary inspector, clerks, telephone and specially detailed policemen. Under the sanitary officer who, in each case, was either a full or an acting assistant-surgeon of the service, were two special inspectors whose duties were mainly to look after serving citations to appear and show cause why nuisances should not be abated, look after court work, check up the abatement of nuisances, etc. In passing, it may be mentioned that all cases were so carefully followed that out of 98,763 nuisances reported only 511 arrests have been made.

Each district was further divided into as many sections as the degree of infection, density of population or other causes demanded, each such section being under a field inspector. Each field inspector had two assistants and each assistant had two foremen, each with five laborers under him. Thus it will be seen that the territory to be covered was divided so that each ordinary gang of men had but a small section to cover. The foreman was responsible to the assistant field inspector; he, in turn, was responsible to the field inspector, who was responsible to the district sanitary inspector, who was responsible to the head office. In addition to these regular workers, there were special gangs of poison men, most carefully chosen from the best of the laborers and directed by experts in the handling and placing of poisons.

Every effort was made to build up discipline and *esprit de corps*. The men were carefully examined before being engaged and each was told that promotion awaited him and that after three months' good service he would be given a certificate. Warrants were issued to the foremen and field inspectors and some of them were made special city police. All district officers were put into the uniform of the service, with a result of, it is estimated, about 40 per cent. increased efficiency. Regular schools of instruction were started and "green" men were fully trained before going to work. A minimum rat-catch was laid down and any man falling below this was discharged. Every Sunday morning all inspectors met at the headquarters and the work of the past week was gone over, suggestions invited, and the activities for the coming week outlined. This seems to have had a marked effect.

Early in the work a sanitary survey of the whole city was made and all buildings were inspected and rated in regard to their rat-proof and non-rat-proof qualities, much as they are rated by the underwriters for fire risks. In each district headquarters a card file giving all the buildings in that district with their rating, and space to note the place and date of finding rats and whether infected or not, was of great value. In the central headquarters all this information was compiled so that the exact condition of any and every building in the city, and whether or not rats had been caught in it, could be determined.

At the request of Dr. Blue, a survey of the sewers was made (it is said, for the first time in twenty years!). This revealed a most deplorable condition. In many instances whole blocks were without sewer connection other than fictional. In others the supposed sewers were merely open creeks or redwood boxes. As a result of this survey, the city has been bonded for the purpose of putting in what will be practically a new sewer system.

Some interesting data concerning poisons have been compiled and will doubtless be published by the service in due course of time. It was found after long and careful tests that all the biologic poisons are worthless. Arsenic and phosphorus are the two chemicals which gave the best results.

Throughout the burned district were large quantities of wreckage, twisted metal, old boilers, pipes, etc., which served as harboring places for rats. Gangs of men were put to work on this and all such wreckage was gathered together and piled on bricks or stones so as to elevate it from the ground.

RAT-PROOFING BY ELEVATION.

Rat-proofing by elevation was first used in this campaign and was suggested in an interesting manner. Lobos Square camp, a Red Cross camp and in supposedly good sanitary condition, was one of the worst plague foci in the city. It was gone over and over, and yet cases constantly appeared. Finally it occurred to Dr. Blue to elevate all the cottages about two feet from the ground so that the cats and dogs, of which there were plenty in the neighborhood, could get under the buildings and keep the rats away. Thereafter plague disappeared from Lobos Square.

Speaking broadly of the general anti-plague campaign, the measures adopted and carried out were such as to keep all food in the shape of garbage, waste, etc., and the inevitable scraps of markets, restaurants, butcher shops and the like so that rats could not gain access to them; secondly, to catch or destroy the greatest possible number of rats, and, lastly, in so far as possible, to keep rats out of and away from all buildings in which human beings lived or were occupied.

All rats found dead were tagged and sent to the laboratory for examination and identification. All caught alive were tagged and sent to headquarters where they were chloroformed and combed in order to remove the fleas, which were subsequently counted and identified, all the fleas from each rat being placed together in a vial of alcohol. Up to Sept. 1, 1908, 113,743 rats passed through the laboratory and 243,244 had been trapped. They were of the following species in the proportions indicated:

Species.	Per Cent.
Mus norvegicus	82.44
Mus rattus	1.66
Mus musculus	15.82
Mus alexandrus	.0109

Between 900,000 and 1,000,000 rats were destroyed. About 15,000 fleas were combed from the rats and identified as follows:

Species.	Per Cent.
Ceratophyllus fasciatus	68.07
Pulex cheopis	21.36
Pulex irritans	5.57
Ctenopsyllus musculi	4.48
Ctenocephalus canis	.52

Before leaving the subject of the general work of cleaning up and general anti-plague measures, it is interesting to note that remarkable absence of flies and fleas has attracted the attention of the general public, just as the very small number of cases of infectious diseases has attracted the attention of the medical profession. The general sanitary condition of the

city has been improved to a very marked degree. The first seven months of 1907 and 1908 show the following comparison:

Cases.	1907.	1908.
Epidemic Diseases	188	153
Typhoid	59	33

Now let us consider the methods followed in the actual fighting of a plague focus. In this campaign, for the first time, the basis of the work has been the fact that plague is a disease of rats, and consequently the finding of an infected rat was regarded with quite as much import as the discovery of a case of the disease in a human being.

The rats when they reach the laboratory are first dipped in mercury bichlorid solution, then tacked by the four feet and belly up on a shingle and the thorax and abdomen laid open. They are then examined by an expert, the various glands, together with the liver and spleen, receiving particular attention. In the event that a macroscopic diagnosis of plague is made, specimens are taken for microscopic examination and inoculations are made.

As soon as a plague-infected rat is found in the laboratory that fact is imparted to the chief or his executive, who immediately notifies the sanitary inspector of the district in which the rat was found of the fact and the location of the place from which the rat was taken. This is first done by telephone, in order that there may be no delay, and is later followed by a letter so that there may be no dodging responsibility. Extra gangs of men are then sent into this vicinity and the entire block, together with the blocks in contact, are rigidly gone over and every effort made to eradicate rat-runs, possible rat-harboring places, etc. To accomplish this, in not a few instances floors and sidewalks have been torn up. Shacks have been burned. Stables have been condemned and closed. Furthermore, all persons living so that they have have come in contact with fleas from such a rat are watched for eight days.

TREATMENT OF PLAGUE CASES.

In the event of the occurrence of a case of plague in a human being, he is at once removed to the isolation hospital. The house in which he lived is fumigated and the clothing and bedding are burned. All human contacts are kept under careful surveillance for eight days. Not only the building in which he lived, but the entire block and the adjoining blocks are subjected to another and more rigid sanitary survey. The full limit of the sanitary odinances is enforced, and by the time that the men have finished their work it is almost certain that no rat could find food or a harboring place in that district, outside of the sewers. Even the reporting of a suspicious case brings the same immediate and rigid inspection and sanitary invasion into that district. The watchword of the campaign has been and is "Let no rat escape and regard every plague-infected rat as of quite as much a menace as a plague-infected human being."

August and September are regarded as the most dangerous months in this climate, and last winter all who were interested in the question of plague looked forward with dread to the coming of this present season. Yet there are now (September) very few fleas and there has been no case of human plague since January.

For a time the disposal of manure from the city stables was a problem owing to the fact tnat the state board of health ordered that no manure should be shipped from the city to points outside unless the same came from a rat-proof stable. The market gardeners of the surrounding counties had been for years in the habit of getting this stable manure to use for fertilizer and they at once made objection. But the rule was enforced and the result was to stimulate the stable men into compliance with the requirements. At the present time, of something over 5,200 stables, more than 70 per cent. have complied with every requirement and are practically rat-proof. The others are in process of adjustment.

Early in the course of the epidemic the canal commissioners ruled that no grains, or similar foodstuffs, could be shipped into the canal zone if the same came from warehouses where rats might have access to them. This had a very stimulating effect on the warehouse men and also on the steamship companies, and now most of the warehouses are rat-proofed and facilities are provided on the docks to store grains, etc., in rat-proof granaries.

The inspection and fumigation of all craft has been continuously maintained under the direction of Dr. Hobdy, passed assistant-surgeon of the service, and his work seems to have been excellently performed.

FINANCING THE CAMPAIGN.

The financial side of the campaign is of no small interest. It must be remembered that the city had just suffered the most disastrous fire in history and that all of its various necessary improvements were either absolutely destroyed or else damaged to a considerable degree. Probably more than half the sewers were destroyed. All municipal buildings were total wrecks. Nearly all the schools had been burned. Jails, courthouses, etc., were wiped out. And yet funds for the plague campaign were urgently needed. The city allowed for this work $30,000 a month for the months of September, October and November, 1907. From December, 1907, to July 1, 1908, $11,000 per month were allowed. In July $5,000, in August $3,000, and from August on $2,000.

The Citizens' Health Committee has raised and spent, very wisely under the direction of Dr. Blue, about $150,000. Most of this has been expended for supplies, traps, garbage cans, etc., and for additional ratcatchers. Laborers were employed only through the office of the sanitary officer in charge—Dr. Blue—and they were put on the work as fast as good men could be secured and trained.

The U. S. Public Health and Marine-Hospital Service paid, up to November 25, the salaries of its own officers in charge of the work. From that date to Sept. 1, 1908, it paid the salaries of the officers and men. Since September 1 it has assumed the payment of salaries of officers and men, transportation and all supplies; in other words, the entire expense of the campaign, a most significant fact.

In my report to you of last year[1] occurs the following:

"The continued existence of such a disease over such an area, and for the time during which it is evident that the infection has existed here, would seem to make the infection a subject for national consideration and protection." Whether or not this report, which was placed in the hands of the supervisors, had any influence in determining their subsequent attitude, it would be impossible to say. But the fact remains that the finance committee of the supervisors very shortly thereafter assumed the position that "the invasion of an epidemic pestilence is a national affair," just as much as would be the invasion of a foreign foe. They recommended that appropriations from city funds for anti-plague work be discontinued and that the federal government be asked to assume the whole burden; this was the more forcibly urged in view of the distressing financial condition in which the city had been left by the fire. As has been mentioned, favorable action was taken on this request by the federal authorities, and now, for the first time in the history of the United States, the national government is paying the expenses of a campaign to eradicate a pestilence having gained foothold in one of the states.

ANTI-PLAGUE WORK OUTSIDE OF SAN FRANCISCO.

In Oakland, Alameda and Berkeley very little has been done that is more than transitory. The antagonism of the citizens is great owing to the fact that but few cases of the disease in human beings have occurred, and none very recently. Nevertheless the rat infection is there and plague rats are found from time to time.

In Contra Costa County, practically nothing is being done, and here the problem is a very large one, for the towns are small and scattered and isolated cases of plague in human beings have occurred in a number of places in the county. Furthermore, as already mentioned, the fact that the ground squirrels in that county are infected with plague, a fact suspected four or five years ago, has at last been demonstrated. How the problem of attacking the infection now existing in the ground squirrels will be approached is as yet an unknown quantity. It is probable that an effort will be made to obtain some funds for this purpose from the legislature which meets

1. THE JOURNAL A. M. A., Dec. 14, 1907, 2003.

in January next, but, judging from the apathy and antagonism in Oakland, nothing will be done.

SQUIRRELS PROVE A SOURCE OF INFECTION.

On Aug. 6, 1908, a boy, 10½ years old, in Los Angeles, picked up a sick squirrel near the railroad yards, which are on the outskirts of the city and near the Los Angeles River. He thought the squirrel was thirsty and took it home to give it a drink. The squirrel bit him and in due course he developed a polyadenitis, in every way typical, clinically, of plague. He was perfectly well at the time and the disease made its onset five days after his being bitten, beginning with the classic signs, headache, nausea, vomiting and high fever, with delirium. He was under medical observation after August 11, and about ten days later was seen by a plague expert sent from Dr. Blue's office in San Francisco. The body of the squirrel which bit the boy was not saved for examination, but another and somewhat tame squirrel kept by the boy was found sick and specimens were taken from it and also from the involved glands and the blood of the boy. Examination proved the presence of plague in both the boy and the squirrel.

Whether the squirrel conveying the infection to the boy was transported from some Bay County where the squirrels have had the disease for the last few years, or whether, during these passing years of idleness and slumber, the infection has passed from rodent to rodent (for there are squirrels all over the state), finally reaching the south, are questions demanding most urgently a prompt answer. What steps will be taken to ascertain the correct answer I do not know, but it would seem to be clearly "up to" the federal government to take congnizance of a situation so pregnant with possibly far-reaching trouble.

Therapeutics

GALLSTONE COLIC.

While a large number of individuals are found, on autopsy, to have gallstones in the gall bladder, only a certain proportion of these people, perhaps much less than half, have ever had a gallstone colic. While a tendency to deposits in the gall bladder is present whenever there is imperfect action of the liver and consequently a concentrated or imperfect chemical secretion of the bile, gallstones are not likely to be formed until there has been some congestion, or previous inflammation, or at least irritation in the gall bladder itself. Gastrointestinal inflammation of mild type and duodenitis of mild type are of such frequent occurrence that probably the bile ducts readily become inflamed, either by continuity or by reflex irritations. The inflammation has to travel only a little farther to involve the gall bladder, and any infection of the gall bladder or any increased mucous secretion of the gall bladder furnishes nuclei for calculous deposits from an imperfect bile. Consequently, the predisposing causes to the formation of gallstones are rich, irritating foods, gastritis, duodenitis, intestinal indigestion and fermentation, alcohol, sedentary habits and an insufficient amount of water ingested.

The symptoms of gallstone colic are too well understood to require description, but the irritations from gallstones in the gall bladder are readily and perhaps generally undiagnosed. The irregular and infrequent or recurrent pains and distress caused by gallstones in the gall bladder and the consequent reflex disturbance of the digestion are attributed generally to dyspepsia in some form, and the stomach is actively treated. Actual inflammation of the gall bladder, unless there is a formation of pus and consequent fever, with marked local symptoms, is also, generally, overlooked. Consequently, just as appendicitis is looked for and excluded in the lower abdomen, so cholecystitis, or irritation of the gall bladder, should be looked for and excluded in the upper abdomen before prolonged treatment of supposed other conditions is begun.

Biliary colic being present, morphin sulphate ¼ of a grain and atropin sulphate 1/150 of a grain should be given hypodermatically, at once. If the patient is able, he should be put into a hot bath in order that relaxation of the abdominal muscles may take place, as this favors the passage of the stone. If the patient is unable to go to the bathroom, or if a bathroom is not at hand, hot water fomentations should be applied to the upper abdomen, and frequently changed. It is absurd to apply any mustard or other counterirritant to the abdomen; also, dry heat is not indicated. Moist heat to produce relaxation is the object of local applications. If the pain is abated by the morphin injected and its intensity again increases, ⅛ of a grain more may be given in 1½ hours from the previous injection, and again in another 1½ hours another eighth grain may be given, if needed. The dose of atropin should not be repeated. It tends to dry up the secretions, contract the blood vessels and inhibit the action of the morphin. The first dose of atropin is given to cause some slight dulling of the peripheral nerves and thus, perhaps, aid in the action of the morphin in inhibiting the pain caused by the contracting bile duct. If at any time the pain is so intense that morphin does not stop it, inhalations of chloroform are indicated. It is much better to give inhalations of chloroform to obtain abdominal relaxation and anesthesia than to stupefy the patient, or cause coma, with morphin.

The best internal aid to the passing of the stone is the plentiful drinking of hot water. Warm olive oil, if the patient is not vomiting, may also be administered on the supposition that it may lubricate the lower end of, or regurgitate up into, the bile duct. No massage should be done or pressure exerted over the upper abdomen with the idea of assisting the passage of the stone.

As soon as the stone has passed into the duodenum or dropped back into the gall bladder the pain, of course, instantly ceases, and a patient who has received large doses of morphin then quickly relapses into a deep sleep. It is generally advisable to keep the patient awake for several hours by gently awakening him every time he drops asleep. By following this rule there will be no danger of morphin coma, or, if it should develop, it would be instantly noted and the proper treatment inaugurated. The patient should remain at rest for the remainder of the day, and in a few hours should be given a saline purgative.

If the stone does not pass, the pain may still gradually cease, or occur at intervals only. If the stone remains in the common duct of course jaundice soon develops. It then becomes a question of medical and surgical decision as to how long an impacted stone should be allowed to remain before there is a surgical interference. The absence of pain during this period is not a guarantee that the stone is not impacted, if other symptoms point to such a condition. A stone long impacted may have so injured or dulled the nerves involved that pain is no longer felt. On the other hand, it is possible that the stone may have passed, but caused sufficient irritation to produce swelling and inflammation of the duct to the point of obstruction and hence jaundice. A dose of calomel or castor oil would then be proper treatment, followed by large doses of olive oil.

Any stomach or duodenal inflammation should be relieved by daily saline laxatives, perhaps best the effer-

rescing phosphate of soda, and the administration of bismuth and soda three times a day, one hour before meals.

℞. gm.
Sodii phosphatis effervescentis.....100 | or ℥iv
Sig.: One or two teaspoonfuls, in a glass of water, before breakfast.

℞. gm.
Bismuthi subnitratis |
Sodii bicarbonatis, āā..... 20 | or āā, 3v
M. et fac chartulas 20.
Sig.: A powder three times a day, one hour before meals.

The diet for a few days should be similar to that for catarrhal jaundice, viz., free from fat. In other words, milk is not a good diet. A little dry toast, broiled lean meat, as steak or chops, hot tea and poached eggs allow sufficient change of diet for a few days. Cold drinks of any kind should not be taken, but plenty of water should be given daily. If there is constipation there should be a daily laxative, as the phosphate of soda, or any other saline. If there is jaundice, daily hot baths are advisable.

A permanent obstruction should not be allowed to go on long without surgical interference, as the longer a jaundice persists the more bloody and dangerous becomes the operation.

As it is rare for a single stone to have been formed, generally several calculi having been started at once, there will probably be other colics. A properly fitting corset or abdominal band sometimes seems to prevent the stones from washing or shaking over into the duct. Whether there are more calculi in the bladder or not, the conditions that caused the first deposition of salts, unless care is taken, will cause the formation of more stones. There is no known drug or water cure or diet that will dissolve stones already formed, although it is possible that in certain unknown conditions a calculus may disintegrate.

There seems to be no doubt, from the statistics now in evidence, that after several attacks of gallstone colic and when there is every reason to believe that there are more gallstones in the gall bladder, either from pain, indigestion symptoms or from localized symptoms which have been proved not to emanate from the stomach or intestines, even without gallstone colics, the gall bladder should be surgically explored, and if found to contain stones, removed. After a feverish attack or several feverish attacks due to a cholecystitis there is no question of the advisability of operation, but the prognosis is so much better before such inflammation has occurred or the danger from either an impacted stone, or from a cholecystitis with future adhesions, that operation should now generally be early advised. Frequently, however, such advice is refused, and some sensible medical treatment must be devised. The better all of the organs of the body functionate, the less imperfect is the bile, and, consequently, the less tendency to gallstone deposits. For such patients a rigid, sensible hygiene and a diet that causes the least indigestion should be outlined. To obtain this object the individual must be carefully studied. No one diet is *the* diet to prevent the formation of gallstones. Alcohol, as tending to inhibit digestion and to congest the liver, should certainly be prohibited. If the circulation is impaired it should be improved with proper cardiac tonics. If the kidney functions are not perfect, the twenty-four hour urine should be studied carefully to determine what is well excreted and what not, and the diet and drink arranged accordingly. The reaction of the liver on the kidney and the kidney on the liver can not be too carefully considered. If the circulation is good and the kidneys are healthy, considerable amounts of distilled water should be regularly drunk. There is no lithia solvent and no spring water solvent for gallstones. A visitation of gallstone patients to a "cure" where they are subjected to rigid régime, their circulation improved, the bowels made to act sufficiently, considerable amounts of water drunk, the diet simple, and means used to increase the circulation in the skin by baths and massage and in the muscles by exercise, will surely improve every such patient, although it will not preclude recurrent attacks of gallstones until the gall bladder is empty, although, as above stated, gallstones may remain in the gall bladder for years without causing colic.

Hyperacidity of the stomach should be combated, and mineral acids should ordinarily not be given, and certainly unadulterated vinegar should be avoided. The vegetable fruit acids which oxidize to alkalis may be allowed and are perhaps beneficial. Whether much alkaline mineral water should be taken depends somewhat on the digestion and the tendency to gout and uric acid conditions, but the sooner that the profession understands that the most solvent water to drink is distilled water, the better will it be for their patients.

The repeated administration of so-called cholagogues, or drugs that are supposed to increase the flow of bile, is not good treatment. Calomel is a cholagogue only in its ability to cause a complete cleaning out of the upper part of the intestine, and is certainly often indicated, but should not be frequently repeated. Salicylic acid preparations somewhat stimulate the secretory activity of the liver, but it is hardly advisable, in the treatment of the condition under discussion, to give a drug so foreign to the system as is salicylic acid. Of course if there is intestinal fermentation and a salicylate, as salol, is indicated, it should be given. A mineral acid, as dilute hydrochloric, or dilute sulphuric, or dilute nitrohydrochloric acid, seems at times to increase the flow of bile to the duodenum, as the duodenum objects to acid and strives to neutralize rapidly any acid that reaches it. These acids, then, sometimes seem to increase the flow of the bile, but except for a short period could not be of any value in disturbances of the gall bladder.

If there is believed to be chronic congestion of the bile passages, the drinking of a glass of hot water an hour before meals is beneficial. Also ammonium chlorid is indicated in this condition, and this drug is just as valuable in subacute inflammation of the bile passages as it is in the subacute inflammation of the bronchial tubes. It may be administered for this purpose as follows:

℞. gm. or c.c.
Ammonii chloridi |
Acaciæ granulatæ, āā..... 10 | or āā, 3iii
Aquæ menthæ piperitæ.....100 | fl. ℥iv
M. et Sig.: A teaspoonful in plenty of water, three times a day, after meals.

If the ammonium chlorid is very disagreeable to the patient, it may be administered in simple carbonated water or in vichy.

It may be well to repeat the necessity for daily thorough evacuation of the bowels, and this should be accomplished by a saline, preferably, or by an aloin, rhubarb, or cascara preparation, as seems best to suit the patient.

While any severe exercise or sudden movement may precipitate a gallstone colic, it has been frequently noted that horseback riding and perhaps automobile riding is beneficial to a patient with a sluggishly acting liver.

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[For other information see second page following reading matter]

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ANTIPLAGUE WORK IN CALIFORNIA.

When one reads of the fearful epidemic of plague of the fourteenth century, which carried off half the population, not only of many Asiatic nations, but also of the principal countries of Europe, that practically wiped out cities, that disrupted social conditions and shattered existing institutions—one is likely to say, contentedly, that this happened in the dark ages, that it could not occur in the enlightened twentieth century. So, doubtless, thought the people of India, where for 200 years no plague existed. But in 1896 they had a terrible awakening, and since that date India has lost by plague over five and a half millions of people. According to Asst. Surgeon-General Eager[1] of the U. S. Public Health and Marine-Hospital Service, there were 1,400,000 cases with 1,200,000 deaths in India last year.

The figures are appalling, and, while they apply to Asiatic countries and while the disease seems to prevail more generally, and the mortality to be greater, among Asiatics than among Europeans, history shows that the disease is no respecter of countries or of peoples. In any event, it is well to recognize the possibilities. In the preface to his exhaustive "Treatise on the Plague," W. J. Simpson says: "Plague takes its own time and opportunity for its development, and it is unwise to be lulled into a sense of security by its apparent impotency to spread in a particular country."

Without being alarmists we may rejoice, therefore, that such radical and persistent efforts have been made on the Pacific coast to eradicate the disease as is indicated by the report of THE JOURNAL'S special commissioner in this week's issue.[2] This is the first time that the sanitary branch of the federal government has had an opportunity to show what it could do if given a free rein. Furthermore, it is profoundly significant that the federal authorities have, both tacitly and actually, accepted the principle that "the invasion of a pestilence is a matter of national import." Any seaport is liable at any time to the invasion, not alone of an armed human foe, but of a subtle pestilence that may be a greater menace to portions of the country distant from the point of invasion than to the immediate port of entrance. Such a pestilential invasion may be justly regarded, therefore, more as a national danger than as a local epidemic.

It would almost seem that the first flying wing of the "sanitary army" suggested in THE JOURNAL some months ago, had been organized and placed on a field footing. Certain it is that in California there are officers and men of such an army, handling a difficult and delicate situation and one of no small gravity, in a thoroughly competent and tactful manner—and getting splendid results. The sanitary work which has been done in San Francisco during the past year by Dr. Rupert Blue, and his executive officer, Dr. Colby Rucker, is of the highest order and should receive the sincerest commendation. They have accomplished much, and this in spite of open antagonism at first and almost continuous apathy. Citizens were finally roused to the existing danger, yet at no time has the community been "panicky." The energies of the roused citizens were tactfully directed into the most serviceable channels and there was apparently no money or energy wasted.

It is evident that sanitary work of this sort must be placed in the hands of trained and competent men; such are not found in every community and at a moment's notice. If this episode of plague in California shall show beyond question the absolute necessity for a standing sanitary army, the value of the demonstration will many times repay the cost thereof. The national rather than the communal importance of pestilential invasion, and its opposition by skilled fighters backed by the weight of the federal resources, are but emphasized in the reported occurrence of a case of plague in Los Angeles. There are rodents in every portion of the United States and the possibility of conveyance from rodent to rodent is by no means to be ignored, for we know that climate has but little to do with the occurrence or distribution of plague. Our pitifully small "sanitary army"—the U. S. Public Health and Marine-Hospital Service—seems to have on its hands the largest and most serious problem that has as yet presented itself. If it can handle the fight to completion as successfully as it seems to have conducted the opening campaign in San Francisco, it will have thoroughly established for itself a permanent place in the government of the people for the people, and will have as absolutely protected the citizens of our country from calamity as could an unlimited standing army or a countless navy. Plague in San Francisco or Los Angeles is as much a menace to Chicago or Boston as to the cities of the Pacific coast.

1. The Present Pandemic of Plague: Pamphlet prepared and published under the direction of the Surgeon-General of the U. S. Public Health and Marine-Hospital Service.
2. Special article, page 1010.

PROPRIETARIES, PIANOS AND PROBITY.

A correspondent, in calling attention to one of a series of resolutions we quoted last week,[1] comments as follows: "Had this resolution been passed by the American Medical Association and been endorsed and published by THE JOURNAL, I am inclined to think

1. Miscellany Department, THE JOURNAL A. M. A., Sept. 5, 1908, p. 858.

that frenzied protests would have arisen in certain quarters about the attempt of the Association to throttle 'independent medical journalism.'" The resolution referred to by our correspondent reads as follows:

> RESOLVED, That this act should be so drawn that periodicals continuing to publish advertisements, determined by such commission to be fraudulent, should be subject to fine and exclusion from the mails of the United States until such misleading and fraudulent advertisements be excluded.

As this resolution was adopted by the National Association of Piano Dealers, we may expect to hear no protests except from the manufacturers of fake pianos. We may assume, however, that those organs which such manufacturers control will come out with spirited editorials denouncing the attempts of the "piano trust" to put the "independent piano manufacturers" out of business. Such periodicals will "view with alarm" the deep-laid plot to cripple "independent piano journalism." Casuistry is much the same wherever found; whether it relates to pianos or proprietaries.

Apropos of commercial probity, a recent article by a New York lawyer, Everett W. Abbot,[2] is worthy of study. Mr. Abbot, in commenting on certain tendencies in the law which have been handed down to us and yet which are unjust, calls attention to the phrase *Caveat emptor*, "Let the buyer beware." "This maxim," he says, "which relieves the seller from the burden of much misrepresentation, has had an untold influence in sapping the morals of the Anglo-Saxon race. A more stringent attitude of the courts, a firmer resolve to compel him who makes representations to live up to them, if it had been fully adopted and sternly carried out in the past, would have had a tremendous uplifting effect to-day on the honesty of the people."

Such things as these—magazine articles, action on the part of manufacturing bodies, etc., are straws which indicate the direction taken by the breeze of business morality that is sweeping the country. The indications are encouraging that not much longer will the fight for decency and truth in advertising be confined to the proprietary medicine world. The position of splendid isolation which has hitherto been held by the comparatively few publications that have insisted on truthfulness in their advertising, no less than in their editorial pages, will, we hope, soon be a thing of the past.

2. The Lawyer's Ignorance of the Law: The Outlook, Sept. 5, 1908, p. 19.

IS TRYPANOSOMIASIS PREVENTABLE?

Since early in the nineteenth century trypanosomiasis has been known as the West African lethargy, or sleeping sickness. Slaves who were imported to the West Indies and to Brazil suffered from it. It is considered to have been endemic originally in a small area near the West African coast, between 15 minutes north and 15 minutes south of the equator, and to have spread thence a thousand miles up the Congo to Stanley Falls, and to the Uganda protectorate. It has now appeared in many other regions, from the Sudanese basin of the Bahr-el-Ghazal in the north, nearly to the southern cape; from the western Congo states to German East Africa. It is a gruesome commentary on the white man's eagerness to assume the burden of regenerating his black brother that the disease seems to have been enormously extended by reason of the "rapid transit"[1] procedures instituted by the former.

Diseases akin to trypanosomiasis, but principally afflicting animals, are found in India (surra, of which the *Trypanosoma evansi* seems to be the causative agent); in the Philippines (where there is also a surra, perhaps identical with that of India); in the Transvaal (a comparatively harmless variety), and in South America (the *mal de caderas—T. equinum*). It seems now to be established beyond doubt that the infectious factor in human trypanosomiasis is the *T. nepreri* or *T. gambiense* (discovered by Nepreu in 1898), a flagellate protozoon found in the blood and cerebrospinal fluid. To the latter fact are no doubt due the lethargy and other symptoms referable to the nervous system. The parasite is found also in horses, cattle and other animals. Koch discovered it in the blood of the crocodile inhabiting the shores of Lake Victoria Nyanza. It is transmitted from animal to man and from man to man by the tsetse fly (*Glossina palpalis*), a voracious blood-sucking insect; it is not yet certain whether or not this insect is the only intermediary. The protozoon may live in its proboscis forty-eight hours after its imbibition, according to one observer, from five to six days according to another, after which time there is no danger of infection from the bite. Minchin[2] found that the parasite is simply inoculated mechanically into the sufferer, the process here differing from that in malaria, in which the mosquito is a true host, in whose alimentary canal the plasmodium undergoes a complicated developmental cycle before infection can be effected. It is generally the natives who suffer from trypanosomiasis; but the white man is by no means immune. Many Europeans in Africa have been victims, and some have died after returning to Europe.

The preventive methods to be pursued are fairly well understood. Last April the second International Congress of Sleeping Sickness met in London. The British government, whose interests in Africa—the Anglo-Egyptian Sudan, British East Africa, the Central African Protectorate, Rhodesia and other regions—are so great and vital, was of course represented; as was also the French colonial ministry in behalf of the French Congo; Koch appeared for Germany; Portugal sent her delegates; Belgium, Spain, Italy, the Congo Free State, all had their deputies. The British government has

1. Ricketts, R. T.: Infection, Immunity and Serum Therapy, p. 487.
2. THE JOURNAL A. M. A., May 30, 1908, p. 1808.

decided to establish a national sleeping sickness bureau, with headquarters in London, and Germany has combined with her for the prevention of the disease in Uganda and German East Africa. Publications of two kinds are to be issued: scientific works for the use of those engaged in research or in the medical administration of the infected districts; and less technical literature for the use of government officials, missionaries and other earnest workers. A map will be made of tropical Africa, showing the distribution of the disease and of the various species of blood-sucking insects which might possibly convey it. Europeans intending to visit Africa are being abundantly informed what must be done for self-preservation, and for the safeguarding of the natives whom they may control. In the field is "a veritable army" of altruistic workers. In the centers of infection are established hospitals, laboratories, animal experiment stations and libraries for reference and consultation; reports are constantly being mailed or telegraphed to cooperating and directing headquarters. The expedition dispatched by the Liverpool School of Tropical Medicine has found the tsetse fly in various Rhodesian districts, particularly along the banks of rivers; and it has been advised that special medical officers should travel constantly in the search for cases. It is sought to move the villages inland and away from the river banks—a matter of little inconvenience to the natives, since their huts are easily built, and they are not dependent on the river for food. Each colonial government has charged its police to collect the patients, wherever possible, in central lazarets, from which healthy natives are to be kept away. In Katanga alone (the extreme southeastern province of the Congo Free State) about twenty such stations are now scattered, whereas a year ago nothing was done in this region for sufferers from sleeping sickness. And these posts are now being augmented as fast as colonial physicians can be sent out. Steam vessels are plying the Congo solely to carry patients to these lazarets, some of which shortly after their opening had to accommodate 600 patients. The natives add to the difficulty of this work. Averse to segregation, the negro in the prodromal stage, will not admit he is sick, and will object to surveillance and treatment. All the Congo hospitals are guarded by troops to prevent the escape of convalescents. Everywhere the colossal task is being pushed most zealously, and in this campaign, which has been conceived on gigantic lines, nothing is left undone to save life and to prevent infection.

BLACK ART IN THE TWENTIETH CENTURY.

C. H. Carson, of Kansas City, Mo., with whose unsavory career readers of THE JOURNAL are familiar,[1] was found guilty in the criminal court of Jackson County on Thursday, September 10, of practicing medicine without a license. Judge Porterfield, the trial judge, assessed the maximum fine of $500 against him. Under the Missouri medical practice act, this offense is only a misdemeanor and consequently can only be punished by fine. This verdict marks the close of a case which has attracted much attention, owing to the long career of the defendant and the ridiculous methods employed by him in treating his "patients."

Much of the credit for the result achieved is due to Mr. George Creel,[2] editor of the Kansas City *Independent,* who has led the fight. Carson was arrested in November, 1906, and through various pretexts the case was delayed until February of the present year. In its issue for Feb. 15, 1908, just before the first hearing of the case, the *Independent* said regarding Carson:

"He knows nothing about medicine, can not even spell or pronounce half the ills he blatantly guarantees to cure. . . . And his methods of treatment! Tissue paper slips, very much like cigarette papers, that he claims to 'vitalize' by holding between his hands. These slips are then given to the patient with directions to pin on the 'nightie' between the shoulder blades 'over the great nerve center of the human body.' Think of it! On the stand under oath he first asserted that he had different treatments for different diseases, but pinned down by merciless questions he could not tell the difference between certain diseases, and finally admitted that he had about the same treatment for everything. For appendicitis, to be sure, he did a little more. In very bad cases, for instance, he would lay his magnetic right hand over the appendix. But the tissue paper slips were his chief reliance—'the vitalized home treatment.'"

It seems almost beyond belief that in this day of public schools and general education a palpable humbug could possibly find any followers. Yet there are, to-day, hundreds of fakers preying on the sick and credulous, whose claims are as ridiculous as those attributed to Carson. We were about to add that such things ought to be impossible in a land where the daily papers are read by every one. Unfortunately, it is the daily papers that make such a career not only possible, but profitable, since it is a certain class of papers which, through passion for advertising and greed for dividends, furnish ridiculous charlatans the publicity they crave. We regret to say that we now have on file articles in praise of "Doctor" Carson of two and three columns length, clipped from the Kansas City *Post,* the Topeka *Daily Capitol* and the Kansas City *Journal,* all so cleverly written as to lead the ignorant or credulous reader to believe that Carson was a great, learned and philanthropic physician.

The suppression of the Reinhardt brothers in Wisconsin and the conviction of Hibbard in Illinois indicate that the speediest way of eradicating quackery and dishonesty is by prosecution under the criminal code for obtaining money under false pretenses. We hope to see this Missouri "healer" called on to prove his claims of wonderful cures in the court room, and to show why he

1. THE JOURNAL, Sept. 1, 1906, p. 690.

2. THE JOURNAL, Feb. 2, 1907, p. 422.

should not be sent to the penitentiary for defrauding his "patients" through false claims as to his knowledge of disease and his ability to cure. It should be firmly impressed on the public that dishonesty in the treatment of the sick is governed by exactly the same principles as dishonesty in any other business. Decent and reputable physicians are opposed to quacks and irregulars because the methods of the latter are essentially dishonest and fraudulent. Newspapers or magazines which, by accepting advertisements containing impossible claims, allow the faker to delude and swindle the ignorant or credulous patient are just as much parties to the crime of obtaining money under false pretenses as though they carried advertisements of green goods or gold brick men, or aided thieves or pickpockets.

THE DOCTOR IN POLITICS.

The part which physicians should take in political activity—or, indeed, whether or not they should take any part—has been the subject of much discussion during the past two or three years. A new plea has been added recently to those already uttered, and this from a source outside the medical profession. The governor of California has addressed a letter to the council of the medical society of that state, asking that some physicians place themselves in line for election to the two branches of the legislature, in order that they may advise with him on matters pertaining to medical legislation.[1] So far as we are aware, this is the first time a request has come officially from the governor of a state to its medical society, urging that representatives of the medical profession take a place in and work with the law-making body. For this reason the action of California's executive is truly encouraging. One wonders, however, how it will work out, for physicians are not only proverbially poor politicians, but they are, almost invariably, loath to enter into the strife and struggle for political preferment. That we neglect one of our civic duties by not taking an active interest in politics, THE JOURNAL has repeatedly pointed out. The matter has become largely a question of initiative. Shall medical men first so educate the people to the need of sanitary and health laws, and to the altruistic objectives of medical science that they will demand representation by our members in the legislatures? That this demand would be made, did the public realize the neglect of life and health—and the economic cost of such neglect—exhibited by the ordinary lay legislator, there can be little doubt. This request from the governor of California seems to indicate that the day is almost here when the demand will be made.

MEMBERSHIP IN THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Notwithstanding all that has appeared in the medical and lay papers on the subject, it may be questioned whether physicians and the general public fully realize the importance and privileges of membership in the International Congress on Tuberculosis. The scientific sessions of the congress are to be held in Washington during the week of September 28 to October 3; the exhibit is to be open from September 21 to October 12. The transactions of the congress will constitute an authoritative presentation of our knowledge of tuberculosis brought down to date. No such complete information on this subject is to be obtained elsewhere, and the four or more volumes which are to be published and sold to non-members for fifteen dollars will be a valuable addition to every physician's library. The mere fact that membership in the congress at a cost of five dollars entitles one to these valuable volumes should in itself be no small inducement. Although the success of the congress was long since assured, it should be a matter of national pride to make this success unequaled by past congresses. While numbers are not the principal test of such success, nevertheless the present membership of the congress (about 4,000) should be doubled, indeed trebled, in order to demonstrate that America is fully awake to the greatest task which preventive medicine can offer to the present generation. Information concerning the exhibit and the scientific proceedings, which has appeared and will be announced further in the columns of THE JOURNAL, indicates the thoroughly international character and extraordinary interest of the congress. More detailed information as well as membership blanks can be secured by application to the secretary-general of the congress, Dr. John S. Fulton, Colorado Building, Washington, D. C.

1. California State Jour. Med., August, 1908, p. 253.

Medical News

DISTRICT OF COLUMBIA.

Personal.—Dr. Watson H. Mullit, assistant resident physician of the Casualty Hospital, has resigned. His successor has not yet been appointed.——Dr. William C. Woodward has returned from a trip to the Canadian Northwest.

Lunchrooms Cleaner.—Health inspectors who for the past month have been inspecting lunchrooms, hotels and other places where foodstuffs are prepared have submitted their report to the effect that the eating houses are now in excellent condition. The inspections will continue from time to time, and wherever the health regulations have been disregarded warrants will be obtained.

Health Report.—According to the health and mortality record for the week ended September 5, there were 106 deaths and 111 births. Typhoid fever showed a slight decrease, there being 36 new cases reported and 30 patients discharged, bringing the total number of cases under treatment at the close of the week to 201. Five cases of diphtheria, 2 of scarlet fever and 8 of whooping cough were reported.

ILLINOIS.

Personal.—Dr. Henry R. Harrower has closed his laboratory in Kankakee and moved to Chicago.——Dr. Alonzo B. Middleton and family, Pontiac, sailed for Europe August 29.——Dr. George Mitchell, of the Illinois Hospital for the Incurable Insane, South Bartonville, has gone to Europe and is delegate to the International Congress for the Relief of the Insane, to be held in Vienna, October 7 to 11.

Home Cure for Consumption.—The Lake County Anti-Tuberculosis Association has been organized at Waukegan, with Dr. John C. Foley, president, and Dr. W. H. Waterson, manager. The association expects to erect a building capable of accommodating twenty patients, on the edge of Waukegan and near the lake, to cost about $10,000. In addition to its tuberculosis colony, the association intends to conduct an educational campaign among the people of the county.

Chicago.

Personal.—Dr. and Mrs. William N. Senn have returned from Europe.——Dr. Alexander H. Ferguson sailed, September 9, to attend the meeting of the International Surgical Congress in Brussels.

Contagious Diseases.—During the week ended September 12, 228 cases of contagious diseases were reported to the department of health, distributed as follows: Scarlet fever, 79; diphtheria, 54; tuberculosis, 28; whooping cough, 16; pneumonia, 8; measles, 6; chickenpox, 3, and other diseases, 4. This is a reduction of 7 cases of diphtheria and an increase of one case of scarlet fever as compared with the preceding week.

Mortality.—During the week ended September 12, 556 deaths were reported, 14 fewer than in the corresponding week of 1907, and 3 in excess of the number reported in the preceding week. At no time in the city's history has so low a typhoid mortality been reported in September. Chief among death causes are the following: Acute intestinal diseases, 144; consumption, 66; nephritis, 36; heart diseases and violence (including suicide), each, 30; nervous diseases and pneumonia, each, 24; cancer, 22; diphtheria, 12; scarlet fever, 10; typhoid fever, 5, and whooping cough, 4.

IOWA.

Sanatorium Opened.—The State Sanatorium for the Treatment of Tuberculosis, at Oakdale, which was opened in February last, now has under treatment 71 patients.

Medical Association Meeting.—The twelfth annual meeting of the Upper Des Moines Medical Association was held at Spirit Lake recently, when the following officers were elected: President, Dr. William E. Bradley, Estherville; vice-president, Dr. Jay M. Crowley, Ellsworth, Minn.; and secretary, Dr. Charles S. Shultz, Spirit Lake.

Personal.—Dr. Thomas F. Beveridge has been elected president; Dr. Elbridge H. King, vice-president; Dr. Benjamin E. Eversmeyer, secretary; and L. G. Burnett, treasurer, of the Hershey Memorial Hospital board of directors, Muscatine.——Dr. Adele Fuchs, Des Moines, has returned from Europe.

MARYLAND.

Temporary Administration Building.—The Municipal Hospital Commission of Baltimore has provided for the erection of a temporary administration building at Sydenham Hospital, to cost about $5,000, and to be so constructed that it may be used for a ward later on, after the permanent administration building has been erected.

Welcome to Delegates.—The foreign delegates to the International Congress on Tuberculosis will be welcomed at Baltimore October 5. Dr. Thomas B. Futcher is chairman of the entertainment committee, and the program includes a reception at the city health department, an automobile tour of the city, inspection of Johns Hopkins Hospital and Medical School, where luncheon will be served, a trip to Eudowood Sanatorium for Consumptives, an entertainment by Dr. and Mrs. H. Barton Jacobs at their country home, and a public lecture at McCoy Hall by Professor Louis Laundouzy, of Paris.

Baltimore.

Personal.—Dr. Nathan E. B. Iglehart was operated on, September 9, at Johns Hopkins Hospital.——Dr. J. G. Schmetzer has returned after a trip through southern Europe.

NEW JERSEY.

Vital Statistics.—During the month ended August 15, 3,209 deaths were reported in the state. Of these 1,084 were under one year of age, 274 between 1 and 5 years, and 686 individuals were 60 years old and over. The principal death cause for the month was infantile diarrhea, which caused 727 deaths, 38 more than for the corresponding month of 1907, and 88 more than for August, 1906. A marked decrease was noted in deaths from infectious diseases, which were far below the average. Among the chief death causes, aside from those already stated, were: Tuberculosis, 326; diseases of the nervous system, 285; diseases of the circulatory system, 252; diseases of the digestive system (excluding infantile diarrhea), 249; nephritis, 189; cancer, 132; diseases of the respiratory system (excluding pneumonia and tuberculosis), 109; pneumonia, 86; suicide, 42; cerebrospinal meningitis, 35; diphtheria, 25; scarlet fever, 21; typhoid fever, 20; whooping-cough, 17; measles, 10; and malarial fever, 7.

NEW YORK.

Another Tuberculosis Exhibit.—The State Charities Aid Association gave a tuberculosis exhibit at the Richmond County Fair which attracted much attention. Charts, diagrams and pictures were exhibited which were designed to give instruction in the prevention of the disease. The models of outdoor porches of inexpensive construction were inspected by many hundreds of visitors.

Studying the Problem of Insane Asylums.—Mr. Albert W. Ferris, president of the State Commission in Lunacy, has just returned from a long European trip, during which he has devoted his time to the study of hospital construction and equipment, securing information which will be useful in the erection of the new hospitals for the insane and in the erection of the projected psychiatric reception hospital in New York. It is imperative that the state should have new hospitals to relieve the present overcrowding and to meet the alarming increase of cases of lunacy.

Buffalo.

Tag Day.—The returns from tag day for the benefit of the District Nursing Association netted between $10,000 and $15,000.

Personal.—Drs. Roswell Park and Edward McGuire have taken a trip to Norway.——Drs. Matthew D. Mann and Max Breuer are on a three weeks' hunting trip to New Brunswick.——Dr. Earl P. Lothrop has returned from a three weeks' trip to Paris.——Health Commissioner Wende is still ill and confined to his home.——Dr. Charles Howard, chairman of the State Prisons Commission, is still confined to his bed in the hospital, but is out of danger.

New York City.

Personal.—Dr. George E. Brewer sailed for Europe September 8.——Dr. Louis F. Bishop returned from Europe September 9.——Dr. Samuel M. Brickner has resumed practice in New York City after a year spent at Saranac Lake, N. Y., in a successful endeavor to overcome pulmonary tuberculosis.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 29, 464 cases of tuberculosis, with 141 deaths; 140 cases of diphtheria, with 15 deaths; 144 cases of typhoid fever, with 14 deaths; 30 cases of whooping cough, with 3 deaths; 6 cases of cerebrospinal meningitis, with 9 deaths; 71 cases of measles, with 3 deaths; 85 cases of scarlet fever, with 4 deaths, and 3 cases of varicella, a total of 943 cases and 189 deaths.——There were reported to the sanitary bureau for the week ended September 5, 466 cases of tuberculosis, with 155 deaths; 175 cases of diphtheria, with 22 deaths; 57 cases of measles, with 5 deaths; 85 cases of scarlet fever, with 9 deaths; 138 cases of typhoid, with 11 deaths; 7 cases of whooping cough, with 5 deaths; 5 cases of cerebrospinal meningitis, with 1 death, and 8 cases of varicella, a total of 941 cases and 208 deaths.

Art and Tuberculosis Prevention.—The committee on the prevention of tuberculosis of the Charity Organization Society is distributing broadcast through the poorer districts of New York City a colored picture of Venice. On the margins of the picture are the following warnings against consumption:

A cough may lead to consumption. If you have a cold that hangs on, if you even faintly suspect that your lungs are not strong, do not try to cure your self. Go to a doctor, or to the nearest tuberculosis clinic, The New York Dispensary, 137 Center Street, where you will be treated free of charge, if unable to pay. Hours, 11 a. m. to 12:30 p. m. week days.

Sunlight, fresh air, good food, temperate habits are the best means of preventing tuberculosis. Keep your windows open day and night, summer and winter.

Don't spit on the sidewalks or on the floors or hallways of your homes or schools. It spreads disease. It is also dangerous.

Tuberculosis is not hereditary, but is acquired, and generally preventable. When you must spit, spit in the gutters, or into a spittoon half filled with water.

Compliments of The Committee on the Prevention of Tuberculosis of the Charity Organization Society, 105 East Twenty-second Street, New York City.

NORTH CAROLINA.

Medical Colleges Open.—The medical department of the University of North Carolina, Raleigh, opened for its seventh annual session September 7. The only change in the faculty is the appointment of W. H. Braddy, Jessama, as assistant demonstrator of clinical pathology.——The opening exercises of the North Carolina Medical College, Charlotte, were held September 9, Rev. William Duncan making the principal address.

Personal.—Dr. Lionel H. Love, Wilmington, has gone abroad on account of ill health.——The following are the medical members of the state Democratic executive committee: Drs. Robert S. Young, Concord; Philemon J. Macon, Warrenton;

and Isaac E. Green, Weldon.——At the recent Democratic convention for the First Congressional District, Dr. Thomas S. McMullan, Hartford, was elected temporary chairman, and Dr. Andrew L. Pendleton, Elizabeth City, permanent chairman. ——At the recent session of the trustees of Wake Forest College, Dr. Edgar E. Stewart, New York City, was elected professor of medicine.——Dr. Cyrus Thompson, Jacksonville, was unanimously nominated for secretary of state at the recent Republican state convention in Charlotte.——Dr. Edwin H. Bowling, Durham, has tendered his resignation as a member of the board of aldermen.

The Case of the Leper.—There has been much interest in the state over the case of John R. Early of Lynn, who served in the Army in the Philippine service in 1900 and 1901. A few weeks ago he was ordered to Washington for special examination by the pension department. This resulted in the discovery that he was afflicted with leprosy, and the District of Columbia authorities quarantined him in the outskirts of Washington. The North Carolina State Board of Health was advised of the matter and notified to send and care for the patient, but referred the matter to the attorney-general for opinion. Meantime the young wife and infant of Early had been brought to the house where he was quarantined. The attorney-general has now decided that the State Board of Health has no authority to send out of the state for any citizen, and hence can not send for Early, and points out the impracticability of the United States authorities returning him to North Carolina, and suggests that as Early contracted the disease in line of duty, the State Board of Health has nothing to do with the case while the patient is in care of United States officials. He also called the attention of the board to the fact that in case Mrs. Early with the infant should return to North Carolina she would naturally become a pauper, subject for custody and quarantine at the hands of the board. After the formal filing of this opinion the board, through its president, Dr. George G. Thomas, Wilmington, so advised the officials of the District of Columbia.

OHIO.

Typhoid in Penitentiary.—Typhoid fever is said to be epidemic in the Ohio State Penitentiary, Columbus; 15 patients are said to be suffering from the disease, a number of whom are in a critical condition.

Eichberg Memorial.—At a memorial meeting of the Cincinnati Academy of Medicine, held August 24, a resolution was adopted providing for the appointment of a committee to solicit funds to endow a professorship of physiology in the University of Cincinnati to be know as the Eichberg professorship. The following committee was appointed: Drs. Nathaniel P. Dandridge, Edwin W. Mitchell, Alfred Friedlander, Simon P. Kramer, Max V. E. Koehler and Christian R. Holmes.

Personal.—Dr. Robert J. Jones, Greenfield, has returned from Europe.——Dr. James T. Hanson, superintendent of the Athens State Hospital, has resigned.——Dr. W. Watson Conger, Toledo, has been commissioned first lieutenant and assistant surgeon, O. N. G.——Dr. Robert C. Longfellow has been appointed professor of biology and laboratory pathology in St. John's College, Toledo.——Dr. Herbert M. Platter, Columbus, city medical inspector, has resigned to accept the position of inspector of maternity and lying-in hospitals and boarding houses under the State Board of Health.

The Unfortunate.—Dr. Frank W. Hendley, major and surgeon First Infantry, O. N. G., fell from his horse at Fort Benjamin Harrison, near Indianapolis, September 4, injuring his right leg.——Dr. Lark Moon, Columbus, is said to have been committed to the Columbus State Hospital, September 4.——Dr. James E. Torrence, Hamilton, has recovered from his recent illness of six months' duration and has resumed practice.——Dr. Frank D. Bain, Kenton, dislocated his right shoulder and sustained other serious injuries in an automobile accident, August 22.——Dr. John Q. Southard, Marysville, is said to be ill at his home with cerebral hemorrhage.

PENNSYLVANIA.

Typhoid Fever.—On August 27 100 cases of typhoid fever were said to be present in Reading, and in four days preceding that date 28 cases were reported. The health authorities have issued notice that all milk and water be boiled before using. ——Shamrock, near Rockwood, reports an epidemic of typhoid fever.

Contract for State Hospital Let.—The contract for a six-story ward building for the State Hospital for the Criminal Insane at Fairview has been awarded. The building will be the first of a group to be built by the state at Fairview, and the cost is to be $116,980. The hospital buildings when completed will have cost $2,000,000.

Medical College Acquired by University.—The trustees of the University of Pittsburg have purchased the Western Pennsylvania Medical College for $100,000. The transfer of the property is to date from July 1. A new course in sanitary science is to be initiated by the university at the opening of the fall term.

Personal.—Dr. William M. Beach, Pittsburg, who was operated on for the removal of gallstones, May 28, has recovered and resumed practice.——Dr. S. N. Dague, Washington, has been appointed company physician for the Midland mine.——Drs. F. W. Davis, Jeannette H. Sherman and Mary L. Evans, members of the staff of the State Hospital for the Insane, Norristown, resigned September 4. Dr. Evans expects to take an extended trip abroad.

Philadelphia.

Foreign Delegates to be Entertained.—The foreign delegates on their way to Washington to attend the International Congress on Tuberculosis, will be entertained by the citizens of this city at a banquet to be given at the Bellevue-Stratford Hotel, September 25.

Personal.—Dr. S. F. Gilpin has been appointed to the neurologic staff of the Jefferson Medical College and the Jefferson Medical College Hospital.——Drs. John G. Clark, John B. Deaver, Edward Shumway and William W. Keen have returned from Europe.——Dr. Mihran K. Kassabian sailed for Europe September 15. He will visit Cesarea, Asia Minor, his birthplace, and return in November.——Dr. Andrew A. Cairns has been reinstated as chief medical inspector of the bureau of health. Dr. Charles A. Groff, who took Dr. Cairns' position during his recent illness, will be appointed supervising medical inspector. ——Dr. B. Franklin Royer is ill with typhoid fever in Jefferson Hospital.

Health Report.—The total number of deaths reported to the health bureau for the week ended September 12 was 445. This is an increase of 53 over the preceding week and a decrease of 12 from the corresponding week of last year. The principal causes of death were: Typhoid fever, 12; pertussis, 2; diphtheria, 12; consumption, 52; heart disease, 43; cancer, 28; apoplexy, 15; arterial sclerosis, 14; acute respiratory disease, 21; enteritis, 51; hepatic cirrhosis, 6; appendicitis, 5; Bright's disease, 35; premature birth, 9; congenital debility, 6; senility, 4; suicide, 1; accidents, 16, and marasmus, 12. The mortality list included 250 males and 195 females. ——There were 149 cases of contagious disease reported, with 25 deaths, as compared with 173 cases and 19 deaths reported in the previous week.

GENERAL.

Smallpox and Cholera in the Philippines.—The chief quarantine officer reports that during the week ended June 27, 6 cases of smallpox, with 4 deaths, were reported in Manila, and that in the following week 11 cases of smallpox, with 6 deaths, were reported in the city.——Cholera continues to increase in the province of Pangasinan and has spread in the province of La Union, Nueva Ecija and Tarlac. The situation in the province of Capiz has improved, as only 10 cases and 8 deaths were reported during the week ended July 4.——During the same week there were reported a total of 614 cases of cholera and 331 deaths from the provinces north of Manila.

International Conference on Tuberculosis.—The International Conference on Tuberculosis is an organization made up of representatives of national associations for the study of tuberculosis from all parts of the world. It was first suggested by von Schroetter in 1898, but the first conference was held in Berlin in 1902. Since then the conference has met yearly and holds its seventh session in Philadelphia this year. The initial business meeting occurs September 24 at 2 p. m. September 25 and 26 are devoted to a scientific program, which we published August 22. According to the printed program, the subject of tuberculosis and legal rights will be discussed on Friday, September 25, instead of Saturday, September 26, as previously announced. The Hospital Association of Philadelphia has sent out cards of invitation to the lecture of Professor Pannwitz, September 23, and the Pennsylvania Society for the Prevention of Tuberculosis and the Henry Phipps Institute have sent out similar invitations for the lectures of Professor Calmette and Dr. Williams, respectively. These lectures are part of the educational program of the International Congress on Tuberculosis, which meets in Washington, September 21 to October 12.

CANADA.

Communicable Diseases.—Ten soldiers at the military camp, Petawawa, are said to be ill with typhoid fever at the Cottage Hospital, Pembroke.——All the schools of Christiana, B. C., have been closed owing to a serious epidemic of smallpox.

Hospital News.—Although the townsite of Prince Rupert, B. C., the western terminus of the Grand Trunk Pacific Railway is as yet unsurveyed, a modern hospital has been installed there under the charge of Dr. Ewing. It has accommodation for 75 patients, has an operating-room with hot and cold water, electric light, etc.

Personal.—Dr. Robert T. Blanchard, Winnipeg, Man., has returned from Europe.——Dr. James F. W. Ross, Toronto, has returned after a motor tour of Europe.——Dr. T. Slater Johnson has been reappointed demonstrator in the biologic department of McGill University, Montreal, after an absence of three years in Africa and Asia.——Dr. Robert C. Young, Ridgetown, Ont., has disposed of his practice and expects to make a tour of Europe.

Reform in the Medical Inspection of Schools in Montreal.—A drastic reform in the medical inspection of the schools is being made in Montreal. At the present time inspectors have only been looking after the schools for a few months during the year. Commencing with September, however, the city will be divided into twelve districts, twelve physicians will be given permanent and constant work, and each physician will be held responsible for the health of his district.

Impure Milk and Infant Mortality in Vancouver.—Dr. Fred T. Underhill, the medical health officer of Vancouver, denies that the infant mortality in Vancouver is heavy as the result of an impure milk supply. He states that Vancouver has a remarkably small infant mortality. In 1906 the total number of deaths from all causes up to 10 years of age was 127. From stomach and intestinal diseases the number was 33, equivalent to a mortality of 0.74 per 1,000. In 1907 the total death rate from all causes under 10 years of age was 239. From diseases of the digestive system under 10 years of age the number was 63, or 1.211 per 1,000.

FOREIGN.

Guinard Prize Goes to Malvoz.—Dr. Guinard, of Ghent, Belgium, founded an important prize to be awarded at five-year intervals for the best medical work or discovery promoting the welfare of the laboring classes. The prize for the current five years was recently awarded to Malvoz, director of the state bacteriologic laboratory, for his works on ankylostomiasis and tuberculosis.

The Marienbad Centennial.—This famous watering place in Bohemia celebrated last month its centennial, and the local medical society issued a special souvenir number of the *Prager medizinische Wochenschrift*. It contains articles describing experiences with the Marienbad waters in various kidney and cardiovascular affections, etc., besides a number of other communications, one reporting a remarkable case of dual personality.

Regulation of Sale of Oysters at Paris.—The board of health has induced the police to require that all oysters must have the shells brushed comparatively clean, and that clean drinking water, salted, must be used to keep them wet. The salt used for preserving fish must not be taken for the purpose. It is forbidden to wash the oysters taken out of the shells, but they must be kept protected from contamination of all kinds.

Hygiene in the Panama Canal Zone.—C. M. Garcia of Veracruz pays enthusiastic tribute to the work of Gorgas in the Canal Zone in a recent communication in the *Cronica Medica Mexicana*, September 1. He reviews the brilliant work in the rehabilitation of Finlay's theory, the sacrifice of Lazear, the triumphs of Reed, Carroll and Agramonte in Cuba, of Marchoux, Simond and Salimbeni in Brazil, the teachings of Guiteras in the famous Las Animas Hospital and in the Columbia encampment, the substantial work of Kean in Havana, of White in New Orleans, of Liceaga in the Mexican Gulf coast, and of Oswaldo Cruz in Rio de Janeiro. Gorgas and the brilliant pleiad of his assistants have saved the Canal Zone, he exclaims, "and when the canal is finished, as it soon will be, let no one be so ungrateful as to forget that this stupendous work could never have been completed without the combined efforts of all these enlightened and devoted spirits."

LONDON LETTER.

(From Our Regular Correspondent.)

London, Sept. 5, 1908.

Diphtheria from Cats.

Dr. Fraser, health officer of Portsmouth, reports 423 cases of diphtheria during last year, many of which he traced to cats. He found that it is not unusual for the cat to be described as having had a "bad cold" before children were taken ill with diphtheria. In the animals he found the Klebs-Loeffler bacillus.

Fatal Gnat Bites.

This summer the gnat bites in some of the North London districts have been remarkably severe. A well-known practitioner, Dr. Andrew of Hendon, succumbed to an attack of erysipelas following a gnat bite. By an extraordinary coincidence the last patient he attended was also bitten by a gnat and died of blood poisoning in a few days. In most of the severe cases the face was bitten.

Study of Tropical Diseases in Jamaica.

Arrangements are being made by the Liverpool School of Tropical Medicine for another expedition to investigate tropical diseases in Jamaica and the insects that are responsible for carrying it. It is intended to send Mr. Newstead, lecturer in economic entomology and parasitology, in the first week in November. He may be accompanied by a medical research investigator, whose duties will be to investigate indigenous diseases.

Increase of Lunacy.

The report of the commissioners in lunacy, just issued, shows that on January 1 last there were in England and Wales 126,048 persons (35.67 per 10,000 of the population) certified as insane—2,096 in excess of the previous year. In the past half-century a notable increase in insanity has been recorded. On Jan. 1, 1859, the number of certified insane was 36,762, on which the latest figures are an increase of 243 per cent. During the interval the increase of population has been only 79.6 per cent. A steady increase in the number of certified insane is shown by the report.

Mussels and Typhoid Fever.

Dr. George F. Buchan, assistant health officer of Birmingham, after four years of investigation in the pathologic department of the university, has come to the conclusion that there are good grounds for believing that mussels convey typhoid fever. Seventy-four cases of typhoid fever have occurred in Birmingham in which the patient had eaten mussels within four weeks of the onset. Dr. Buchan's experiments show that mussels readily imbibe the typhoid bacillus from specifically polluted water. The danger of laying mussels where they may be bathed by sewage-contaminated water is, therefore, manifest. Only one link is now required in the chain of evidence—the discovery, during the time of year when typhoid fever is prevalent, of the typhoid bacillus in the body of the mussel.

VIENNA LETTER.

(From Our Regular Correspondent.)

Vienna, Austria, Aug. 31, 1908.

Properties of the Carlsbad Springs.

The Carlsbad springs are threatened by the neighborhood of mines, chiefly of kaolin. Several times the quantity of water issuing in twenty-four hours has been affected by the sinking of new shafts or the opening of new communications. Precautions have now been taken to prevent any encroachments by the mines and any other changes likely to affect the springs. It was found that the main affluent pipe of the "sprudel" spring had been for many years nearly blocked up by a deposit of lime, and that many other mains were also incrusted. These deposits have been removed. It has been ascertained that the temperature and chemical composition of the water have not changed for about fifty-five years in spite of the altered conditions of the springs.

Centenary of Oppolzer's Birth.

A few days ago the centenary of the birth of Professor Oppolzer was celebrated by the medical faculty in Vienna, and a bust of the clinician was unveiled in the presence of many of his former pupils and friends. Oppolzer was famous for his therapeutic intuition and keenness of clinical observation, which enabled him to make a wonderfully correct diagnosis and prognosis. When revolutionary nihilism in therapeutics was at its height—it was thought that the organic patho-

logic changes in the body could not be influenced at all—Oppolzer's knowledge of materia medica made him an object of constant admiration and a benefactor to his patients. Before he died in 1871 he had the satisfaction of seeing the adoption of his belief that there is something in judicious therapy and the repudiation of nihilism in medicine.

The Public Interest in Radium Research.

In the northern part of Austria, the Austrian government owns the largest radium-producing mines in the world. Recently the Vienna Academy of Science received from the minister of the interior 4.5 gr. of pure bromid of radium for use in research. An anonymous donation of $100,000 has been made for the purpose of erecting in Vienna a radium institute, at which students from all countries may study the chemical, physical, medical and physiologic action of this wonderful element. The government has promised to provide the required material and funds to meet the running expenses. A site has been already selected, and the existence of the institute is assured. Experiments are now being carried on at Joachimsthal, where the radum ore is found, and in Vienna, to ascertain whether or not water charged with emanations from radium has any medical properties. The results of the research are promising, for the ingestion of such water has been found to be followed by definite improvement in rheumatic and arthritic cases.

PARIS LETTER.

(From Our Regular Correspondent.)

PARIS, FRANCE, Aug. 27, 1908.

Reform in Medical Education.

For some time the defects of the present system of medical instruction in France have been the subject of general discussion. In April, 1907, the ministry of public instruction appointed a committee to recommend changes in the medical curriculum. This commission finished its work on March 21, 1908. The criticisms made on the present system, however, bear less on the organization of the curriculum than on the method of recruiting the professors.

OPINION OF DR. ROUX, DIRECTOR OF THE PASTEUR INSTITUTE.

According to Dr. Roux, who was a member of the commission just mentioned, but in the minority, to change programs without changing the spirit of those who teach, is to accomplish little. At present the professors are chosen from among the assistant professors, the *agrégés*, and the *agrégés* win their positions by public competitive examinations. It is altogether unusual for a professor to be chosen outside the body of *agrégés*. The system, therefore, closes the door of the official professorships against all those who have not succeeded at the competitive examinations. Dr. Roux suggests the suppression of the post of *agrégé* and the substitution of something like the German privat-docent system. Those who wish to teach would apply to the faculty, who would grant the authorization under certain guarantees. The candidate would not have to take an examination or compete with others, but would submit his credentials, his references, his work on the subject, and would state that he had at his disposal suitable apparatus and means for teaching. Any one who was thus authorized by the faculty to teach would not be a member of the official faculty, and would receive no salary, but would be paid by his pupils. A sifting process would thus take place among these trial professors, for pupils would not be disposed to pay a teacher from whom they learned nothing.

ADVANTAGES AND DISADVANTAGES OF THE COMPETITIVE EXAMINATION SYSTEM.

A characteristic feature of the French educational system is that all positions on the faculties, as well as those on the hospital staffs, are awarded by *concours*, that is, according to the outcome of public competitive examinations. Although much has been said against it, the *concours* still remains the best means of avoiding, or, at least, of restraining, the evils of favoritism. One of the most serious criticisms made against the competition for the post of *agrégé* is that the judges often try, irrespective of the showings, to pass as many as possible of their own pupils. Favoritism, however, is somewhat checked by the publicity of the *concours*.

Another advantage of the *concours* is that the candidate's preparation trains him in public speaking, and in clear and precise exposition of a subject within a given length of time. Indeed, to the continual demands of the preparation for various *concours* must be attributed that mastery of clearness and perfection of style which all concede to the French systems of education.

The danger, also, lies right here. There are too many public competitive examinations, and perfection of style plays far too great a part in the competitions. Again and again I have heard professors say to candidates preparing for a *concours:* "Practice debating and lecturing, where you can learn to speak and to give to the various divisions of your subject the importance which they deserve. To know is good, but to show that you know is better."

Consequently our young medical men devote themselves for years to discussions, to public speaking, and to that wearisome, fruitless toil which Taine called the "mechanical cram." Sometimes they continue to appear at *concours* until the age of 35; there are members of hospital staffs who have been appointed only at their fifteenth competitive examination! This baneful, empty drudgery, which has only the competitive examination in view, finally cripples the mental powers, causes style to be preferred to substance, and puts an empty, resounding verbosity in the place of science. Professor Debove remarked at the last Congress of Medicine that the abuse of literature was one of the clogs to the progress of medicine, and that many systems which have had their day of success would never have held public attention if their authors had not possessed a literary style which too often masked inconsistency of doctrine.

The purely verbal character of instruction and the tendency to believe that one has made a discovery because he has invented a new term or a well-turned formula, are fostered still more by the fact that the teacher, having attained his post as *agrégé* or his professorship, after long years of exhausting and sterile labor, often aged and discouraged thereby, has neither the inclination nor the strength for independent research. As the salaries are very modest, and sometimes altogether insufficient, the professors try to eke out their incomes by private practice, and finally devote themselves to practice to the neglect not only of scientific research, but of their teaching duties. Hence, the remuneration of the professor by his pupils presents great advantages, since it would cause a young instructor to devote himself to his educational work. Many consider this the first reform to be accomplished.

Another reform demanded is the reduction of the amount of didactic instruction, which predominates even in subjects that can be properly taught only at the bedside. The institution of hospital internes has stood the test of time in France. Dr. Roux makes an exception of the hospital internes when he declares that the young physicians are ill-prepared for the practice of medicine. Many of the hospital internes, he says, are excellent physicians, not because they have passed the *concours* for the hospital interneship, but because they have received, during the four years of their hospital service, a practical medical education. Ought not this practical education to be granted to all medical students?

In short, as Dr. Huchard has well said: "In a country which has given birth to the three greatest medical revolutionaries of the nineteenth century, Laennec, Claude Bernard and Pasteur, who opened up three worlds to science: auscultation, physiology and microorganisms, French science to-day still makes an imposing appearance; and if we can only go forward, reform what has become superannuated, suppress a great number of useless *concours* which paralyze our scientific activity for fifteen or twenty years and bring the finally attained professorship fifteen years too late, we shall soon resume the place which belongs to us, and retain among us more of the foreign physicians who now pass on elsewhere."

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, Aug. 29, 1908.

The Question of Medical Specialties.

In this age of individualization, in which in every field of scientific and practical effort the most extreme division of labor has taken place, it is not to be wondered at that, even in medicine, the specialties are developing more and more, and that at the present time the field formerly cultivated by the general practitioner has been split up into a large group of specialties.

In America, proportionately, the number of specialties is still more extensively developed than with us. But even in Germany the specialties in medicine already can be counted by dozens, and the proportion of specialists to general practitioners is continually enlarging. According to a statistical investigation instituted in March, 1904, by the Prussian ministry of public instruction (*Kultusministerium*) there were in Prussia, aside from the university instructors, about 2,800 special physicians; thus there were for 100 physicians 15.7 specialists. In 34 of the larger cities in Prussia the number of specialists, in proportion to the total number of physicians,

varied from 2.04 to 39.86 per cent. In some university cities the percentage of specialists, including the university teachers, amounted to over 40 per cent. Statistics obtained by a private investigation show how greatly the number of specialists has increased in some large cities. According to these figures the percentage of specialists increased from 1885 to 1905 as follows: In Stuttgart from 12.2 to 45.4; in Dresden from 8.0 to 41.6; in Frankfurt-on-the-Main from 7.5 to 41.6; in Munich from 9.2 to 40, and in Leipsic from 10.4 to 37.0. This increase in specialists extends not only to single cities, but is observed throughout the entire country, so that specialists at the present time are located not merely in the large cities as formerly, but even in cities of 10,000 and even fewer inhabitants. To what extent the number of specialties has increased is to be seen also from the imperial medical calendar. There are specialists for each of the various metabolic disorders, for pulmonary tuberculosis, for medical treatment of rupture, for ulcers of the leg, etc. If we seek for the reasons for the choice of a specialty we meet especially with three: first, a pronounced preference and fitness for a particular specialty; second, the hope of earning a better living in a special field than among the great mass of practicing physicians, and, finally, the greater freedom of specialists from the cares of the general practitioner.

That the disproportionate increase of specialists has a serious significance, both for the economic interests of practicing physicians as well as of the specialists themselves and also of their patients, has been repeatedly claimed in medical journals and can scarcely be doubted. The field of labor of the general practitioner, the sources of his income and the sources for the perfecting of his scientific skill are continually being narrowed. In the better situated families, now-a-days, the general practitioner is scarcely consulted any more, but the people go directly to the different specialists and the family physician, formerly generally employed, either very often does not exist at the present day or his task is simply in case of sickness to select the individual specialist. He is, as the saying goes "merely an address book for specialists." It is also clear, on the other hand, that the income of the specialists is injured by their excessive multiplication and that their reputation suffers, as specialists frequently announce themselves as such without adequate special training. These are the so-called "six weeks' specialists." Finally, there is a disadvantage to the patients from these conditions because, by the lack of a family physician the malady is too often not attacked at its root, or they do not reach the appropriate specialists, or they are compelled to suffer from the overactivity of specialists, which has been often enough complained of. For all these reasons the attempt has been repeatedly made to hinder the excessive growth of this specializing, but an effective remedy has not yet been found; every one of the proposed remedies has its drawbacks.

The establishment of a special examination for specialists has not met the approval of the majority of German physicians, particularly because they feared that by this means the value of the specialist in the eyes of the public would be still further enhanced, and that the general practitioners would be regarded as second-class physicians. The demand for evidence of more extensive preparatory training meets with greater approval. In what way this evidence will be demanded and furnished is not easy to say; various methods have been proposed to this end. The writer of a recent article in the *Deutsche medizinische Wochenschrift* treated the matter very thoroughly and proposed as a remedy that specialists should be forbidden to advertise their titles to the public. He referred particularly to England and France, where frequently the specialty is not displayed on the street signs nor inserted in the directory, and, as I am informed, this custom also prevails in many of the American states.

Some weeks ago the Prussian minister of public instruction announced that the Scientific Commission for Medical Affairs (*Wissenschaftliche Deputation für das Medizinalwesen*) had at his request made the following suggestions: The right of the physician to advertise himself as a specialist for certain departments of practical medicine or to designate himself by any other title of the same significance must be exercised under certain definite restrictions. Special training after receiving the medical degree should be required to justify one in advertising himself as a specialist or with any other equivalent title. The special training should consist in scientific postgraduate education and practical employment during a period which has been shown by experience to be sufficient for independent practice in the selected department. As a rule, three years may be considered as necessary. The special education must be received in the university medical institutes or academies for practical medicine, spetial departments of large hospitals or as assistant to recognized specialists. A list of the approved institutes and specialists for this purpose will be prepared and published yearly by the proper authorities. The duration and success of the specialistic employment shall be proved by a certificate from the instructing physician. The minister stated that he would prefer to refrain from a legal regulation of the question, and he directed the "medical councils" to take the conclusions of the Scientific Commission as the basis for their action. Some action on the question may be expected.

Care of Cripples.

For a number of years provision has been made in Germany for the deaf and dumb and the blind by the erection of public and private institutions for them, but no such provision has been made for cripples, in the stricter sense. Efforts toward such provision are now being made with two objects in view: first, to help the unfortunates themselves and to secure for them in a certain degree the enjoyment of life, while raising them from the ranks of the beggars, and, secondly, to make them useful members of society and thus relieve the public and private benevolent institutions of their care. One of the last things accomplished by the late Prof. Hoffa was to place himself at the head of an association founded here in Berlin for the care of cripples, and his energy and enthusiasm greatly advanced the work. The association has erected an institute for the treatment and care of cripples in Berlin, in which crippled children are not only cared for, but are to be developed into useful human beings.

The association has been collecting for the first time statistics in regard to cripples to estimate the need for the further erection of sanatoria and of institutions in which the cripples are merely received and instructed in various forms of handicraft (basket weaving, etc.); of the latter there are about thirty so far in Germany. In Germany, excluding Bavaria, Baden and Hesse, for which the returns are not yet complete, there have been recorded about 75,000 cripples of school age, that is, 1.48 per 1,000 inhabitants. About one-half of these cripples are in such a condition that they can not support themselves. For these, numbering about 45,000, there are available at present only 3,000 beds in the various institutions. Fully 10 per cent. of the cripples of school age have received no instruction. In Germany there are, besides, about 5,500 children who are crippled and feeble-minded, and of these only 820 at the present time enjoy the instruction which is necessary for them. The economic importance of systematic provision for cripples is shown in an address which the medical director of the Berlin sanatorium for cripples delivered at its opening. In Berlin there are 2,600 cripples under 14 years according to the census. If we assume that 600 of these are sufficiently self-supporting, without medical aid, there would remain only 2,000 who would become a burden to their relatives or to the public poor authorities, and if we reckon only one mark a day for the care or assistance of each cripple grown to manhood without care and technical training, the community of the citizens of Berlin would need to supply 730,000 marks ($176,200). But if it were possible to make about 93 per cent. of the 2,000 cripples self-supporting, they would earn for Berlin about 1,500,000 marks yearly, so that they would not only entail no drain on the poor fund, but they would increase the wealth of the nation by useful labor.

Correspondence

Coal-Tar and Chronic Eczema.

KANSAS CITY, MO., Sept. 11, 1908.

To the Editor:—In THE JOURNAL, Aug. 8, 1908, I had a clinical note on the above subject. I have just learned that articles along the same line, written by Dr. Brocq, of Paris, had previously been published in the *Annales de Therapeutique, Dermatologique et Syphiligraphique* and in the *Journal de Médecine et de Chirurgie pratique.* While I had never seen nor heard of either of his articles, the suggestion which led me to commence the use of the substance was received in a private letter from Dr. Cowen, a medical friend residing abroad, and from subsequent developments it appears probable that he derived his suggestion from Dr. Brocq's publication. I feel that I have innocently done Dr. Brocq a deep injustice and I desire that he be given full and entire credit for first bringing this remedy before the profession.

R. L. SUTTON.

Pharmacology

BEEF, WINE AND IRON.

A National Formulary Preparation of Doubtful Value.

Criticisms of National Formulary preparations are much to be desired as there have been introduced into that, now authoritative, book on the supposed demand of physicians, many preparations which pharmaceutically and therapeutically are open to grave objections. Among these is Beef, Wine and Iron, which at first thought seems to answer the requirement for a nutriment, stimulant and tonic.

Attention has recently been called by Mr. J. P. Street[1] to the fact that intelligent physicians have long known that the nutritive value of meat extractives was practically *nil*. Mr. Street made analyses of a large number of samples of the Beef, Wine and Iron preparation as sold by druggists either branded with their own name, or with that of some wholesale manufacturer. Of 92 samples only 22 satisfied the National Formulary requirement of 0.007 gm. of nitrogen per fluidram. In the 92 samples the iron varied from 0.025 to 0.355 per cent. with an average of 0.114 per cent., which is considerably less than the required amount.

He details experiments from which he concludes that the process of the National Formulary is unsatisfactory; when the procedure directed was closely adhered to the finished preparation contained only about one-tenth as much iron as the formula indicates. He demonstrated that nine-tenths of the iron used is precipitated during the manufacture and is removed by filtration. Mr. Street makes the following very pertinent comment on the preparation:

> "It is rather difficult to understand the reasons for the admission of a preparation of such doubtful efficacy into the formulary. For all practical purposes, in most cases it is nothing more than sherry wine of more or less questionable quality, to which has been added small quantities of meat extract and either tincture or citrate of iron. Meat extract is recognized as possessing but slight nutritive value, and the amount used in the preparation of beef, wine and iron would have but little value even as a tonic or stimulant. On the other hand, the iron in these preparations might be of value as a tonic during convalescence and in certain blood disorders, but it could be obtained much more cheaply and could be used much more intelligently in other forms and under a physician's direction. The use of such materials by an invalid on his own responsibility likewise exposes him to the danger of acquiring, unconsciously, the habit of alcoholism."

The popularity of this preparation among the laity rests largely on the name, and on the idea that it is possible to extract from meat its nutritive properties and administer them in a concentrated form; much as we can give a considerable amount of a crude drug such as belladonna in a minute dose of the alkaloid, atropin. That this idea is still entertained by many is shown by the misleading labels placed on many brands of "Beef, Wine and Iron." Mr. Street calls attention to this and says:

> "Many of the labels on the samples bear other false and misleading statements, such as 'one-half ounce contains the strength of one ounce of beef,' and 'one tablespoonful contains the equivalent of 1½ ounces of lean meat."

While physicians seldom prescribe this preparation, its sale to the public is largely pushed by druggists and others whose interest in it is purely commercial. Its removal from the National Formulary is earnestly to be desired and physicians should see to it that the public is informed as to its very limited value and they should attempt to offset the psychic attraction which its name possesses.

Fairchild Brothers & Foster and the Council's Report on Diastase Ferments.

We have received a communication from Fairchild Brothers & Foster, in which they say that the recent report of the subcommittee on valvation of diastase ferments misconceives the point of the objection they have made to this report. They have not only in the past advocated and proposed a uniform method of valuation based on the parts of starch converted to colorless reaction in ten minutes, but they now further formally request that all pharmaceutical products of diastase (simple or compound) be submitted to valuation by the particular method of applying the test, proposed by the subcommittee and adopted by the Council on Pharmacy and Chemistry. They point out that their "reply" (to the proof of the subcommittee's report) did not involve an objection to, or criticism of, this subcommittee's test or the results thereof, but was simply directed against the impression conveyed, as they insist, in the "remarks" advanced and again in the "supplementary report."

It may be that in the remarks supplementary to the report of the Council, a wrong impression was conveyed regarding the status of Fairchild Brothers & Foster's product, Holadin. It was not the intent of the report to question the statements of Fairchild Brothers & Foster regarding their products, nor was it intended to convey the impression that the firm misrepresented the digestive value of their product as claimed by the test for valuation previously submitted by them to the Council.

It will be remembered that the main object of the examination on which this report was based was to test the various digestive products on the market by the same method and tests, so that the actual value of each could be demonstrated.

1. Am. Jour. Pharm., August, 1908

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Dr. McCormack's South Dakota Tour.

Dr. J. N. McCormack has just completed a tour of two weeks through South Dakota. His meetings have been well attended and unusually interesting, as may be gathered from the South Dakota press. The *Aberdeen Daily American* says:

> Very interesting was the lecture delivered yesterday evening by Dr. J. N. McCormack, lecturer of the American Medical Association, under the auspices of the Aberdeen District Medical Society. A good sized audience of professional and business men and women listened attentively to the lecture, which was a treat. The aim of the lecturer was to show the awful loss of life that is going on every year in this country, which is entirely unnecessary, and to enthuse his audience to begin a systematic organization which will have for its purpose the elimination and eradication of preventable diseases.

At Watertown the audience was most enthusiastic, and as a result it was decided to organize a local health league. The *Watertown Opinion* says:

> As a result of the lecture delivered in the Grand Opera House last evening by Dr. J. N. McCormack of Kentucky, Watertown will in a short time have a health league. By resolution, the people present decided on this course. At the conclusion of the interesting and instructive address by the eminent man of medicine, several local speakers briefly spoke of the efforts of the doctor and of the benefits which are to be derived from a health league. Among the speakers were nearly all of the ministers of the city.

The Brookings *Press* says:

> A great deal of interest was taken in the lecture by Dr. J. N. McCormack, who told of the conditions which he had found in different communities and of methods which are being advocated for making communities more sanitary and for bringing the medical profession and laymen more closely together in eradicating diseases.

At Sioux Falls Dr. McCormack took up local health matters and described the condition in which he found the Sioux Falls slaughter-houses on the afternoon preceding the lecture. The Sioux Falls *Daily Press* says:

> After the lecture, Dr. McCormack, in speaking to a *Press* reporter, said: "I have visited many of the worst places in the country and Sioux Falls surpasses all of them. I only describe the things as I see them, and the slaughter-houses

here are by far the worst of any I have yet visited." At the close of the address, Mayor W. T. Doolittle, who presided over the meeting, called on various persons to express themselves on the subjects as presented by the doctor. The city health officer, Dr. Keller, expressed himself as agreeing with everything that Dr. McCormack had said. Bishop Hare spoke in high commendation of the warfare waged by the speaker against unhealtful conditions and offered resolutions thanking Dr. McCormack for his lecture and assuring him of cooperation insofar as local conditions could be remedied. These resolutions were accepted without a dissenting voice.

Editorially, the *Daily Press*, under the heading, "What is Going Into Our Mouths," comments on Dr. McCormack's lecture and calls on the citizens of Sioux Falls, as well as the honest dealers in food supplies, to insist on rigid sanitary inspection in order "that the public may know what places it is safe to patronize and that a premium may be placed on cleanliness."

The Sioux Falls *Argus-Leader*, besides containing an account of the lecture, discusses, in its editorial columns, the importance and necessity of a national department of public health. The editorial says:

It is important that we should keep up the Navy and Army and that we should protect the health of the cattle and pigs, and keep rust out of the wheat and the pine beetle out of the trees, but it is little less than a slander on our people that the health of the people, the lives of human beings, should be neglected as they have been since our government was organized. . . . In his lecture Dr. McCormack produced facts which were undeniable and which are in reality a shame on the American people. The Department of Agriculture has expended forty million dollars in the last ten years to solve the problem of diseases to plant and animal life on the farm. It is now proposed to expend two hundred and fifty millions more to exterminate diseases in stock and plant life. No one objects to this expenditure. It is the best investment the American people have ever made; but if it is wise to spend millions to save the lives of horses and cattle and sheep . . . it certainly ought to be worth while to spend a few millions every year to protect the lives of the American people, to educate them in the important problems of sanitation, to save the babies and to prolong the lives of the adults. In the opinion of this paper Dr. McCormack made out his case.

At Yankton a large and enthusiastic audience listened to his address. The *Yankton Herald* says:

Seldom is it that a Yankton audience is impressed as at last night's gathering and most would call the lecture a most opportune talk on subjects that are too seldom brought before the public.

At Mitchell, according to the *Daily Republican*, the highly pleased audience at the city hall was composed of representative citizens of the city. Mayor A. E. Hitchcock presided and introduced the speaker. At the close of the address the mayor suggested that the physicians and women's clubs of the city organize a local health league, which recommendation was enthusiastically adopted.

Dr. McCormack's tour in South Dakota has only added additional proof that the public will gladly and willingly cooperate with the medical profession to secure better sanitary conditions as soon as it is generally understood what is needed and how better conditions can be brought about.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Second Month.

General Subject for the Month: Infection, Immunity and Serum Therapy.

FIRST WEEKLY MEETING.

INFECTION.

[This subject to be divided among three members as indicated.]

Infectious Agents.—I. Living (pathogenic parasites). A. Macroparasites (pediculi, etc.). B. Microparasites: (1) Bacteria (fission fungi). (2) Fungi of complex organization (aspergillum). (3) Protozoa (plasmodium malariæ). II. Non-living (toxins). A. Animal toxins (snake venom). B. Vegetable toxins: (1) Non-bacterial (abrin, ricin). (2) Bacterial: a. Soluble bacterial toxins (diphtheria). b. Intracellular bacterial toxins.

Sources of Infectious Agents.—a. Occurrence in healthy beings; on skin and mucous membranes, in saliva, intestinal excreta, urine, bile, etc., "bacillus carriers." b. Transmission by animals: 1. Suffering from transferable diseases, anthrax, tuberculosis. 2. Mechanical carriers of germs, flies. 3. Intermediate hosts, mosquitoes. c. Aerial infection, exanthemata, tuberculosis, etc.; dust infection, droplet infection. d. Water-borne infection, typhoid, dysentery, etc. e. Soil and infection. f. Food and infection.

Routes of Infection.—Skin, conjunctiva, mucous membrane of respiratory and digestive tracts, genital tract, selective invasion as cholera vibrio in intestine.

Dissemination of Pathogenic Germs.—Local, as tetanus bacillus, toxins being absorbed; direct extension, erysipelas; blood metastases, pyemia; lymphatic metastases, infected wounds mechanical extension, aspiration pneumonia.

Elimination of Infectious Germs.—Direct, in abscesses, conjunctivitis, diphtheria, etc. Indirect, through blood into urine, bile, milk, etc.

Latency of Microbic Infections.—Diphtheria bacilli in throat, typhoid bacilli in gall bladder or periostitis, recurring attacks of malaria and rheumatism, bacteria in immunized persons and animals.

Mixed and Secondary Infections.—Variations in intensity of primary and secondary invaders.

Products of Infectious Agents.—Toxins, bacterio-toxins, bacterial hemolysins, phytotoxins. Endotoxins. Bacterio-proteins.

General Resistance to Infectious Agents.—Degrees of virulence of pathogenic bacteria.

Symptoms Due to Infectious Germs.—Period of Incubation. Local effects, serous, fibrinous, suppurative, diphtheritic, hemorrhagic, necrotic and proliferative changes. Leucocytosis; effects on red corpuscles, hemolysins, hemagglutinins; changes in blood-making organs, spleen and bone marrow. Parenchymatous degeneration in heart, kidney, liver, spleen. Changes in nervous system. Fever, due to different substances in blood, crises and recurring fevers. Effects on metabolism; due to changes in intake, chemical and in amount; to changes in output, as albumin through diseased kidney, loss in diarrhea, etc.; changes in chemical processes in body. Formation of antibodies; antitoxins, amboceptors, agglutinins, precipitins and opsonins.

Reference Books for the Second Month.

Ricketts: Infection, Immunity and Serum Therapy.

Sternberg: Immunity: Protective Inoculations in Infectious Diseases, and Serum Therapy.

Ehrlich: Collected Studies on Immunity.

Metchnikoff: Immunity in Infectious Diseases.

Bolduan: Immune Sera.

Allen: Opsonic Methods of Treatment.

Cabot: Serum Diagnosis of Diseases.

Vaughan and Novy: Cellular Toxins.

Jowett: Notes on Blood Serum Therapy.

Osler: Modern Medicine, Vol. II.

Queries and Minor Notes

ARTICLES ON THE OCULAR TUBERCULIN REACTION.

————, CAL., Sept. 4, 1908.

To the Editor:—I wish references to the best articles on the tuberculin reaction observed in the ophthalmic test, covering the technic, results, deductions, etc. A. P.

ANSWER.—We are constantly receiving questions similar to the above. We remind our readers that we issue with every volume, that is, twice yearly, a very exhaustive index to the current medical literature, which is intended to enable the reader to answer just such questions as this for himself. All the items here given—and they form only a small number of those available, nearly all the references to foreign journals being passed over—were obtained by referring to the aforesaid index. This is a task with which it seems scarcely fair to burden this office.

The following original articles, which have appeared recently in THE JOURNAL, cover much of the ground specified:

Baldwin, E. R.: Ophthalmic Tuberculin Diagnostic Test, Dec. 14, 1907, xlix, 1969.

Smithies, F., and Walker, R. E.: Calmette's Ophthalmic Reaction to Tuberculin, Jan. 25, 1908, l, 259.

Rosenau, M. J., and Anderson, J. S.: The Ocular Reaction to Tuberculin, a Warning, March 21, 1908, l, 961.

Tice, F.: Ocular Reaction to Tuberculin, June 13, 1908, l, 1982.

Clark, C. P.: Conjunctival Tuberculin Reaction, June 20, 1908, l, 206.

Parker, H. C.: The Calmette Ocular Tuberculin Reaction, June 27, 1908, l, 2124 (with a summary of literature).

Satterlee, G. R.: A Serious Result of the Ocular Tuberculin Test, June 27, 1908, l, 2133.

The following are some of the more important recent communications on the ocular tuberculin test in other periodicals:

Barney, C. N., and Brooke, R.: Ocular Reaction to Tuberculin, *Med. Rec.*, July 18, 1908; abstracted in THE JOURNAL, Aug. 1, 1908, li, 438.

Bass, C. C.: Ocular Tuberculin Reaction in Diagnosis of Tuberculosis, *New Orleans Med. and Surg. Jour.*, March, 1908, abstracted in THE JOURNAL, May 16, 1908, l, 1653.

Calmette, A.: Sociologic Importance of the Ocular Diagnosis of Tuberculosis, *Bull. de l'Acad. de méd.* de Paris, Jan. 14, 1908 (an important article), abstracted in THE JOURNAL, Feb. 29, 1908, l, 733.

de Lapersonne, F.: Is the Ocular Reaction to Tuberculin Free from Danger for the Eye? *Presse méd.*, Dec. 7, 1907; abstracted in THE JOURNAL, Jan. 18, 1908, l, 244.

Dietschy, R.: Cytologic Findings on Conjunctival Tuberculin Reaction, *München. med. Wchnschr.*, June 16, 1908; abst. in THE JOURNAL, July 18, 1908, li, 265.

Downes, H.: Tuberculin Ocular Reaction, *Brit. Med. Journal*, Dec. 7, 1907; abst. in THE JOURNAL, Jan. 4, 1908, l, 76.

Eyre, J. W. H., Wedd, B. H., and Herz, A. F.: Tuberculin Ocular Reaction of Calmette, *Lancet*, London, Dec. 21, 1907, gives a wide review of continental work on the subject; abst. in THE JOURNAL, Jan. 18, 1908, l, 242.

Floyd, C., and Hawes, J. B.: Ocular Tuberculin Reaction, *Jour. Med. Research*, February, 1908; abst. in THE JOURNAL, April 4, 1908, l, 1149.

Hamman, L.: Use and Value of Tuberculin in Diagnosis of Pulmonary Tuberculosis, *Arch. Int. Med.*, June, 1908; abst. in THE JOURNAL, July 25, 1908, l, 348.

Lecky, H. C.: Calmette's Ocular Reaction, *Brit. Med. Jour.*, March 28, 1908; abst. in THE JOURNAL, April 25, 1908, l, 1381. (The same issue of the *British Medical Journal* contains articles on the same subject by H. E. R. Stevens and H. de C. Woodcock.)

MacLennan, W.: Ocular Tuberculin Reaction, *Brit. Med. Jour.*, Dec. 7, 1907; abst. in THE JOURNAL, Jan. 4, 1908, l, 77.

Moro, E.: Tuberculin Inunction as a Substitute for the Ocular Reaction, *New York Med. Jour.*, June 27, 1908; abst. in THE JOURNAL, July 11, 1908, li, 166. (The same *New York Medical Journal* contains also articles on the ocular reaction by A. L. Benedict and H. H. Pelton.)

Napier, A.: A Suggestion of Caution, *Glasgow Med. Jour.*, January, 1908; abst. in THE JOURNAL, Feb. 15, 1908, l, 567.

Van Durme, P., and Stocké, E.: Tardy Ocular Lesions After Diagnostic Instillation of Tuberculin, *Presse méd.*, March 14, 1908.

Wolff-Eisner, A.: Ocular and Cutaneous Diagnosis of Tuberculosis, *Beitr. z. Klin. d. Tuberk.*, ix, No. 1 (a review to date); abst. in THE JOURNAL, March 7, 1908, l, 806.

Wolff-Eisner, A., and Teichmann, F.: Importance for Prognosis of Ocular and Cutaneous Reaction of Tuberculin, *Berl. klin. Wchnschr.*, Jan. 13, 1908; abst. in THE JOURNAL, Feb. 22, 1908, l, 650.

Webster, J. S., and Kilpatrick, J. A.: One Hundred and Twenty-one Cases Tested with Calmette's Tuberculin, *Brit. Med. Jour.*, Dec. 7, 1907; abst. in THE JOURNAL, Jan. 4, 1908, l, 77.

Weber, F. P.: Calmette's Ocular Reaction for Tuberculosis (a cautionary article), *Brit. Med. Jour.*, Feb. 15, 1908; abst. in THE JOURNAL, March 14, 1908, l, 920.

Zaniboni, B.: Ocular Reaction to Tuberculin, *Policlinico*, Rome, Jan. 5, 1908; abst. in THE JOURNAL, Feb. 8, 1908, l, 492. (The abstract covers also an important article by G. Serafini in the *Gior. d. r. Accad. di Med.*, Turin, November, 1907.)

The original papers by Calmette and Wolff-Eisner were published, respectively, in the *Comptes rendus de l'Académie des sciences*, June 17, 1907, and the *Berliner klinische Wochenschrift*, 1907, xliv, 700.

The announcement is just made of the publication of the Ophthalmic and Cutaneous Diagnosis of Tuberculosis by Dr. Wolff-Eisner, Berlin. London: John Bale, Sons and Danielsson, Ltd. Price 7s 6d, net.

ESPERANTO IN MEDICINE.

M. P. Corret, secretary of the Redaction of the Lingvo Internaciǒ, Paris, France, is preparing a thesis on "The Utility and Possibility of the Adoption of an Auxiliary International Language by the Medical Profession." M. Corret is therefore desirous of obtaining information on examples of misunderstanding at international congresses, due to diversity of languages, the acceptance of Esperanto as an official language by medical congresses and societies, the presentation to international congresses of communications in Esperanto, the difficulties of bibliographic research in foreign works, medical works containing mention of or extracts in Esperanto, etc. The more varied the sources of information, the more valuable will be the thesis, and the more effective in its bearing on the adoption of Esperanto. The author will give the name and nationality of every informant. Esperantist physicians may send their communications in Esperanto direct to Monsieur P. Corret, 12 Rue de la Vergennes, Versailles, (S.-et-O.), France. Non-esperantists willing to help may send their information in English to Dr. Grace E. Papot, 1038 Jackson Boulevard, Chicago, who will forward a translation to M. Corret.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending, Sept. 12, 1908:

Dulin, C. T., M. R. C., ordered to active duty in the service of the United States.

Treuholtz, C. A., cont.-surgeon, leave extended one month.

Reasoner, M. A., first lieutenant, leave of absence extended four days.

Craig, C. F., captain, detailed member of competitive examining board at Fort Leavenworth, Kans., vice Captain Bloombergh, hereby relieved.

Gosman, G. H. R., captain, relieved from duty at Fort Morgan, Ala., and ordered to Fort Barrancas, Fla., for station and duty.

Shepherd, J. M., M. R. C., granted thirty days' leave of absence.

Patterson, R. U., captain, granted leave of absence to visit the United States, to take effect on date of arrival in United States of the transport *Kilpatrick*, and ending Oct. 15, 1908.

Bartlett, C. J., captain, granted leave of absence to visit the United States, to take effect on date of arrival in the United States of the transport *Kilpatrick*, and ending Sept. 15, 1908.

Koyle, F. T., M. R. C., ordered to active duty in the service of the United States.

Boards of officers of the Medical Corps, as hereinafter constituted, are appointed to meet at the places designated for the purpose of conducting the examination of applicants for appointment as first lieutenants in the Medical Reserve Corps of the Army:

Richard, Charles, lieut.-col.: Wilson, W. H., major; Wolfe, E. P., captain, at New York City.

McCaw, W. D., major: Huggins, J. B., captain; Barber, J. R., first lieut., at Washington, D. C.

Fisher, H. C., major; De Loffre, S. M., captain; Owen, L. J., captain, at Columbus Barracks, Ohio.

Bradley, A. E., major; Winn, R. N., captain, at Jefferson Barracks, Missouri.

Davis, W. B., lieut.-col., at Omaha.

Munson, E. L., major, at Fort Leavenworth, Kans.

Farr, C. W., captain, at Fort McKinley, Me.

Heysinger, J. D., captain, at Key West Barracks, Fla.

Chamberlain, W. P., major, at New Orleans, La.

Peed, G. P., captain, at Fort Ontario, N. Y.

Reynolds, F. P., major, at St. Paul, Minn.

Kulp, J. S., major, at Fort Meade, S. D.

Lewis, W. F., major, at Fort Sill, Okla.

Schreiner, E. R., major, at A. G. H., Presidio, San Francisco.

Keefer, F. R., major, at Presidio, Monterey, Cal.

Stark, A. N., major, at Vancouver Barracks, Washington.

McCulloch, C. C., Jr., major, at Ancon, Canal Zone, Panama.

The boards will be governed by such instructions as they may receive from the Surgeon General of the Army, to whom the reports of the boards will be rendered direct.

Eber, A. H., M. R. C., relieved from further duty in the Philippine Islands, and on expiration of his present leave of absence, ordered to Fort DeSoto, Fla.

Hanson, L. H., first lieut., ordered to Fort Sam Houston, Texas, for station and duty.

Miller, A. L., M. R. C., granted twenty days' leave of absence.

Keefer, F. R., major, will proceed from Presidio of Monterey, to San Francisco, on or before Sept. 10, 1908, reporting on arrival to the adjutant general, Department of California, for assignment to duty as acting chief surgeon of the department, during the absence of Col. Geo. H. Torney, chief surgeon.

Richard, Charles, lieut. col.; Carter, W. F., major; Shaw, H. A., major; Winter, F. A., major; Wilson, W. H., major, ordered to Fort Myer, Va., Sept. 16, 1908, for the purpose of undergoing the physical examination and testing their skill and endurance in horsemanship.

Hussey, S. W., dental surg., granted fifteen days' leave of absence.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Sept. 12, 1908:

Heneberger, L. G., medical director, commissioned medical director from Sept. 2, 1908.

Percy, H. T., medical inspector, commissioned medical inspector from Sept. 2, 1908.

Wise, J. C., medical director, detached from command of the naval medical school hospital, Washington, D. C., and ordered to duty as a member of the naval examining and naval medical examining boards, Washington, D. C.

Boyd, J. C., medical director, ordered to additional duty in command of the naval medical school hospital, Washington, D. C.

Wheeler, W. M., surgeon, ordered to the Navy Yard, New York, September 12.

Mink, O. J., passed asst.-surgeon, detached from the naval recruiting station, Chicago, and ordered to the naval medical school, Washington, D. C.

Rodman, S. S., passed asst.-surgeon, unexpired portion of leave revoked; ordered to the naval recruiting station, Chicago.

Dessez, P. T., passed asst.-surgeon, detached from the *Chicago*; unexpired portion of leave revoked and ordered to duty at the naval hospital, Las Animas, Colo.

Hathaway, G. S., asst.-surgeon, ordered to duty in connection with fitting out of the *Wyoming*, and to duty on board that vessel when commissioned.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health, and Marine-Hospital Service during the week ended September 11, 1908:

SMALLPOX—UNITED STATES.

Alabama: Mobile, Aug. 23-29, 1 case.
California: San Francisco, Aug. 23-29, 2 cases.
Indiana: Indianapolis, Aug. 24-30, 3 cases.
Iowa: Sioux City, Aug. 25-31, 3 cases.
Montana: Butte, Aug. 26-Sept. 1, 1 case.
Ohio: Zanesville, Aug. 1-31, 1 case.
Wisconsin: La Crosse, Aug. 23-29, 6 cases; Milwaukee, 2 cases.

SMALLPOX—FOREIGN.

Arabia: Aden, Aug. 4-10, 2 deaths.
Borneo: Sandakan, June 15-30, 1 death.
Brazil: Rio de Janeiro, July 26-Aug. 2, 519 cases, 231 deaths; Santos, July 20-26, 1 death; Pernambuco, July 16-30, 29 deaths.
Canada: Halifax, Aug. 23-29, 1 case.
Ceylon: Colombo, July 18-25, 14 cases, 2 deaths.
China: Amoy, July 15-21, present.
Ecuador: Guayaquil, July 25-Aug. 8, 8 deaths.
Egypt: Cairo, Aug. 6-12, 2 cases, 1 death.
India: Bombay, July 27-Aug. 4, 8 deaths; Calcutta, July 19-25, 5 deaths.
Indo-China: Cholen, July 19-25, 1 case, 1 death; Saigon, 2 cases, 1 death.
Italy: General, Aug. 10-16, 115 cases; Genoa, July 1-31, 3 cases; Messina, July 19-25, present; Naples, Aug. 2-15, 9 cases, 2 deaths.
Java: Batavia, July 19-25, 3 cases.
Mexico: Mexico City, July 19-25, 25 deaths.
Norway: Christiania, Aug. 9-15, 22 cases.
Philippine Islands: Manila, July 12-18, 15 cases, 5 deaths.
Portugal: Lisbon, Aug. 9-15, 4 cases.
Russia: Riga, Aug. 9-15, 2 cases; Warsaw, 4 deaths.
Spain: Barcelona, Aug. 4-10, 1 death.
Turkey in Asia: Bagdad, July 19-25, 20 cases, 4 deaths.

CHOLERA.

China: Hankau, July 19-25, 8 cases, 5 deaths; present among Europeans, and July 27, epidemic among natives; Hongkong, 4 cases, 3 deaths.
Japan: Moji, Aug. 8, 2 cases, one case from Yamaguchiken; Yokahama, Aug. 17, 3 cases, 1 death, on British steamer in quarantine.
India: Calcutta, July 19-25, 9 deaths; Madras, July 24-31, 13 deaths.
Indo-China: Cholen, July 19-25, 9 cases, 9 deaths.
Philippine Islands: Manila, July 12-18, 1 case, 1 death; provinces, general, 1,445 cases, 788 deaths.
Russia: Rostov, July 26-Aug. 14, 87 cases, 37 deaths; government districts, St. Petersburg, Sept. 9, 15 cases; Astrakhan, Aug. 1-7, 92 cases, 38 deaths; Saratov, 152 cases, 74 deaths; Samara, 4 cases, 3 deaths; Don, territory, 14 cases, 10 deaths.

YELLOW FEVER.

Cuba: Antilla, Sept. 8, 1 case, 1 death.
Santiago: Santiago Province, Firmeza, Aug. 22, 1 case; Santiago, from Mayari, Sept. 7, 1 case.
Ecuador: Guayaquil, July 25-Aug. 1, 1 death.
Mexico: Laguna del Carmen, Aug. 29, 2 cases; Vera Cruz, Sept. 7, 1 case.

PLAGUE—UNITED STATES.

California: Los Angeles, Aug. 11, 1 case.

PLAGUE—FOREIGN.

Azores: Terceira, July 1-Aug. 11, 29 cases, 15 deaths.
Brazil: Rio de Janeiro, July 26-Aug. 11, 1 case.
British East Africa: Port Florence, July 5-11, 21 cases, 18 deaths.
Chile: Antofagasta, July 19-26, 3 cases; Iquique, July 23-29, 3 cases, 3 deaths.
China: Amoy, July 21, epidemic; Hongkong, July 19-25, 17 cases, 14 deaths.
Indo-China: Cholen, July 12-25, 19 cases, 19 deaths; Saigon, July 18-25, 4 case, 1 death.
Ecuador: Guayaquil, July 25-Aug. 1, 2 deaths.
India: General, July 21-Aug. 6, 621 cases, 461 deaths; Bombay, July 29-Aug. 4, 31 deaths; Calcutta, July 19-25, 22 deaths; Rangoon, July 21-27, 32 deaths; Formosa, July 26-Aug. 1, 1 case, 1 death.
Peru: General, July 21-Aug. 3, 40 cases, 21 deaths.
Siam: Bangkok, July 14-20, 3 cases.
Venezuela: La Guaira, Aug. 5, present.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

NEW YORK State Board of Medical Examiners, Albany, September 22-25. Chief of Examinations Division, Charles F. Wheelock, Albany.

GEORGIA Homeopathic Board of Medical Examiners, 153 Whitehall street, Atlanta, October 1. Secretary, Dr. R. E. Hinman, 153 Whitehall street, Atlanta.

LOUISIANA State Board of Medical Examiners, New Orleans, October 1-2. Secretary, Dr. Felix A. Larue, 211 Camp street, New Orleans.

RHODE ISLAND State Board of Health, State House, Providence, October 1-2. Secretary, Dr. Gardner T. Swarts, 315 State House, Providence.

ARIZONA Board of Medical Examiners, Phoenix, October 5-6. Secretary, Dr. Ancil Martin, Phoenix.

UTAH State Board of Medical Examiners, Salt Lake City, October 5-6. Secretary, Dr. R. W. Fisher, Salt Lake City.

IDAHO State Board of Medical Examiners, Boise, October 6. Secretary, Dr. W. F. Howard, Pocatello.

MONTANA State Board of Medical Examiners, Senate Chamber, the Capitol, Helena, October 6. Secretary, Dr. W. C. Riddell, Helena.

COLORADO State Board of Medical Examiners, State Capitol, Denver, October 6. Secretary, Dr. S. D. VanMeter, 1723 Tremont Place, Denver.

NORTH DAKOTA State Board of Medical Examiners, Grand Forks, October 6-8. Secretary, Dr. H. M. Wheeler, Grand Forks.

MINNESOTA State Board of Medical Examiners, the Old Capitol, St. Paul, October 6-9. Secretary, Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.

NEW MEXICO Board of Health and Medical Examiners, Santa Fe, October 12-13. Secretary, Dr. J. A. Massie, Santa Fe.

ARKANSAS Regular Board of Medical Examiners, Little Rock, October 13. Secretary, Dr. F. T. Murphy, Brinkley.

ARKANSAS Homeopathic Board of Medical Examiners, Little Rock, October 13. Secretary, Dr. P. C. Williams, Texarkana.

GEORGIA Regular Board of Medical Examiners, Capitol Building, Atlanta, October 13. Secretary, Dr. E. R. Anthony, Griffin.

MISSISSIPPI State Board of Health, The Capitol, Jackson, October 13. Secretary, Dr. S. H. McLean, Jackson.

KANSAS State Board of Medical Registration and Examination, Topeka, October 13-15. Secretary, Dr. R. A. Light, Chanute.

MICHIGAN State Board of Registration in Medicine, Lansing, October 13-15. Secretary, Dr. B. D. Harison, 504 Washington Arcade, Detroit.

WYOMING Board of Medical Examiners, October 14-16. Secretary, Dr. S. B. Miller, Laramie.

NEW JERSEY State Board of Medical Examiners, State House, Trenton, October 20-21. Secretary, Dr. J. W. Bennett, Long Branch.

INDIANA Board of Medical Registration and Examination, Room 120, State House, Indianapolis, October 27. Secretary, Dr. W. T. Gott, Room 120, State House, Indianapolis.

Maryland Homeopathic June Report.

Dr. Joseph S. Garrison, secretary of the Board of Medical Examiners representing the Maryland State Homeopathic Medical Society, reports the oral and written examination held at Baltimore, June 16-17, 1908. The number of subjects examined in was 9; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 21, of whom 15 passed and 6 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Maryland Med. Coll.	(1905)	77.5
Atlantic Med. Coll., Baltimore, (1908) 75.1, 75.1, 75.2, 75.5, 75.7, 78.1, 78.2, 78.2, 81.3, 83, 83.3, 85.4, 87.2.		
Hahnemann Med. Coll., Philadelphia	(1893)*	

FAILED.

Atlantic Med. Coll., Baltimore, (1908) 54.6, 64.6, 64.6, 66.1, 72.8, 74.4.

*Took special oral examination.

Connecticut Eclectic July Report.

Dr. T. S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports one reciprocal license issued July 14, 1908, through reciprocity with Ohio, to a graduate of the Eclectic Medical Institute of Cincinnati, 1906.

Marriages

HARRY C. LONG, M.D., Cleveland, to Miss Lillian L. Susser of Buffalo, August 28.

J. G. ORMEN, M.D., to Miss Miami Berthae Wagner, both of Baltimore, August 4.

JESSIE W. SMITH, M.D., and Frederick J. Trumpér, both of Cleveland, August 25.

JACOB J. SINGER, M.D., St. Louis, Mo., to Miss Flora Loewenstein of Chicago, recently.

LOUIS G. RUPP, M.D., Concord, Wis., to Miss Jessie Humphrey of Ixonia, Wis., August 26.

M. L. WEBB, M.D., Fredericksburg, Va., to Miss Lula Dillon, at Fredericksburg, September 3.

JOSEPH COLT BLOODGOOD, M.D., Baltimore, to Miss Edith Holt of New York City, September 1.

ARTHUR PEAKE, M.D., to FRANCES M. CONNELL, M.D., both of Valley City, N. D., August 27.

BERT M. BREWSTER, M.D., Fieldon, Ill., to Miss Leila M. Chambers of Godfrey, Ill., August 17.

GEORGE C. SMITH, M.D., West Salem, Ohio, to Miss Leota Myrtle Cloes of New Sarum, Ont., July 29.

JAMES WELCH, M.D., Collins, Miss., to Miss Josie Hunter Weathersby of Clinton, Miss., September 3.

CLARENCE D. INGRAHAM, JR., M.D., Baltimore, to Miss Aileen B. C. Dammann, at Baltimore, September 2.

THOMAS A. MASSEY, M.D., Hampton, Va., to Miss Elizabeth Hardwick, at Elizabeth City, N. C., recently.

CHARLES WARREN HERRINGTON, M.D., to Miss Beulah A. Bents, both of Madison, Wis., September 9.

ALEC NICOL THOMPSON, M.D., to Miss Margarite Corbett Scandlin, both of Brooklyn, N. Y., September 7.

J. DILWORTH STROUD, M.D., to Miss Mae Virginia Saunders, both of Ocean View, Norfolk, Va., September 7.

CAPT. WILLIAM WILKINSON RENO, Medical Corps, U. S. Army, to Miss Ruth Steere of Manila, P. I., August 14.

Deaths

George Kinney Johnson, M.D. Cleveland University of Medicine and Surgery, 1846; a member of the American Medical Association; in 1859 mayor of Grand Rapids, Mich.; surgeon of the First Michigan Volunteer Cavalry, and later brigade surgeon and medical inspector of the Middle Military Department during and immediately after the Civil War; in 1879 president of the Michigan State Medical Society; a member of the National Association of Railway Surgeons; and surgeon-in-chief of the Grand Rapids & Indiana, Chicago & West Michigan, and Detroit, Lansing & Northern railroads; for several years president of the local board of U. S. pension examining surgeons; chief of staff and consulting surgeon to Butterworth Hospital died in his home in Grand Rapids, September 3, after an illness of one year, aged 86.

William T. Eckley, M.D. University of Iowa, College of Medicine, Iowa City, 1884; a member of the American Medical Association, Chicago Pathological Society and Chicago Medico-legal Society; formerly professor of anatomy in the medical and dental departments of the University of Illinois, Chicago Clinical School and Chicago School of Anatomy and Physiology; who retired from professional work about two years ago; died at his home near Grand Haven, Mich., September 12, from heart disease, aged 53.

Frederick Hubbard Hooper, M.D. College of Physicians and Surgeons in the City of New York, 1857; a member of the American Medical Association; surgeon to the House of Correction and attending surgeon at the Marine Hospital, New Bedford, Mass.; in 1863 surgeon of the board of enrollment for the First Congressional district; and in 1873 appointed visiting physician to St. Joseph's Hospital; died at his home in New Bedford, August 31, after an invalidism of several years, aged 78.

Josephus Henry Gunning, M.D. New York Homeopathic Medical College and Hospital, 1867; New York University Medical College, New York City, 1873; and later a lecturer in the latter institution; a member of the Medical Society of the State of New York; electrotherapeutist to the French Hospital, New York City; and president of the board of health of Scarsdale, N. Y.; died at his home in that place, August 29.

William Greer Armstrong, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1891; a member of the American Medical Association; member of the Louisiana State Board of Health for two terms; and one of the most prominent young practitioners of Louisiana; died at his home in New Orleans, September 2, from pneumonia, after an illness of nine days, aged 38.

Staats Van Deursen Clark, M.D. College of Physicians and Surgeons in the City of New York, 1870; a member of the Medical Society of New Jersey; physician to Wells Memorial Hospital, New Brunswick, N. J.; for seven years city physician and a member of the board of freeholders; died at his home, September 6, from locomotor ataxia, after an illness of two years, aged 60.

Josiah Fisher Day, M.D. College of Physicians and Surgeons in the City of New York, 1856; surgeon of the Tenth and Twenty-ninth Maine Volunteer Infantry during the Civil War; for many years a member of the school board of Alford, Maine, and United States pension examining surgeon; died at his home in Everett, Mass., August 23, after a long illness, aged 75.

Ernest A. Crockett, M.D. Jefferson Medical College, Philadelphia, 1896; a member of the American Medical Association; ophthalmic surgeon on the staff of the Central Maine General Hospital; and a specialist on diseases of the eye, ear, nose and throat; died at his home in Lewiston, Maine, September 3, from typhoid fever, after an illness lasting two weeks, aged 37.

William Rosensohn, M.D. College of Physicians and Surgeons in the City of New York, 1900; a member of the American Medical Association; chief of the medical clinic of the Orange Memorial Hospital Dispensary; died recently at his home in East Orange, N. J., from pulmonary tuberculosis, after an illness of a year and a half, aged 30.

Robert M. Boyles, M.D. Western Reserve Medical College, Cleveland, Ohio, 1877; a veteran of the Civil War; at one time burgess of Reynoldsville and Falls Creek, Pa.; auditor and public school director of Du Bois, Pa.; died at the home of relatives in Reynoldsville, August 26, from septicemia, after an illness of four months, aged 68.

Lorenzo Hale, M.D. Albany (N. Y.) Medical College, 1868; a member of the Medical Society of the State of New York, and at one time its president; for several years editor-in-chief of the *Albany Medical Annals;* died at his home in Albany, August 31, from paralysis, after an illness of six weeks, aged 64.

Nicholas C. Sheppard, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1867; of Richmond, Va.; surgeon of Wood's Brigade, Stuart's Division, C. S. Army, during the Civil War; died in the Virginia Hospital, Richmond, September 3, after a lingering illness, aged 76.

Nathaniel James Mills, M.D. Jefferson Medical College, Philadelphia, 1855; surgeon in the Confederate service during the Civil War; postmaster of Corsicana, Texas, for one term; died at his home in that city, August 3, from senile debility, after an illness of about two years, aged 74.

William Y. Bliss, M.D. University of Vermont College of Medicine, Burlington, 1879; of Tully, N. Y.; twice coroner's physician of Onondaga County; died at the home of his brother in Burlington, Vt., September 5, from nephritis, after an illness of several years, aged 60.

Robert Henry Blaisdell, M.D. Indiana Eclectic Medical College, Indianapolis, 1885; a member of the American Medical Association; and secretary and director of the public schools of Sheridan, Mich.; died at his home, August 30, after an illness of some months, aged 58.

Moses E. Seale, M.D. Maryland Medical College, Baltimore, 1905; a member of the State Medical Association of Texas; formerly of Burlington; who recently moved to Lampasas; was shot and instantly killed in an affray at Burlington, August 31, aged 36.

U. LeRoy Washburn, M.D. Bellevue Hospital Medical College, New York City, 1890; for 30 years a practitioner of medicine; a member of the visiting staff of the Harlem Hospital; died at his home in New York City, September 23, after an illness of 20 weeks, aged 59.

Ezra H. Cummings, M.D. Baltimore Medical College, 1903; of Clarksburg, W. Va.; a member of the West Virginia State Medical Association; died in a hospital in that city, September 3, from typhoid fever, after an illness of three weeks, aged 34.

Louis McMurtry Coke, M.D. Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1908; of Utica, Ky.; died in Alamagordo, N. M., June 6, from tuberculosis, after an illness of five months, aged 27.

Daniel J. Chittenden, M.D. New York University Medical College, New York City, 1859; formerly of Cameron Mills, N. Y.; a member of the Medical Society of the State of New York; died at home in Union, N. Y., September 4, aged 75.

Milton M. Hess, M.D. Central College of Physicians and Surgeons, Indianapolis, 1891; for many years a practitioner of Shelby County, Ind.; died at his home in Freeport, September 1, from cardiac dropsy, after a long illness, aged 70.

LeGrand D. Sherman, M.D. Castleton (Vt.) Medical College, 1854; died September 8, at his home in Tyro, Kan., from the effects of a gunshot wound of the head, said to have been self-inflicted with suicidal intent, aged 73.

Felix H. Coyle, M.D. College of Physicians and Surgeons, Baltimore, 1886; of New York City; died in Harlem Hospital, July 10, it is said, from the effects of prolonged exposure to the sun for the relief of rheumatism.

Millard Fillmore Warner, M.D. New York University Medical College, New York City, 1877; at one time a member of the state senate; died at his home in Cleveland, Ohio, August 29, after a short illness, aged 59.

Benjamin E. Shirk, M.D. Rush Medical College, Chicago; for nearly 40 years a practitioner of Marshalltown, Iowa; died at his home, January 18, from senile debility, after an illness of two weeks, aged 82.

Russell R. Smith, M.D. Cincinnati College of Medicine and Surgery, 1871; of East Liberty, Ohio; a member of the American Medical Association; died August 30, in a hospital in Columbus, aged 64.

B. Dorsey Winchester, M.D. University of Louisville, Medical Department, 1906; died suddenly near the home of his wife's parents, at Tompkinsville, Ky., September 6, from heart disease, aged 23.

Charles Leibecke, M.D. Germany, 1861; a veteran of the Civil War; and afterward United States gauger; died suddenly at his home in Aurora, Ind., May 15, from cerebral hemorrhage, aged 62.

Jason Lee Taylor, M.D. Southern Medical College, Atlanta, Ga., 1884; died at his home in St. Petersburg, Fla., May 29, from congestion of the liver, after an illness of eight days, aged 45.

Patrick Michael Bracelin, M.D. University of Iowa College of Medicine, Iowa City, 1875; died at his home in Davenport, Iowa, September 3, after an illness of eight months, aged 68.

A. U. Holland (Registration, Franklin County, Pa., 1881); for 40 years a practitioner of medicine at Fayetteville, Pa.; died at his home from hemiplegia, September 5, aged 77.

Charles C. Frost (Examination, Mass., 1894); for nearly 30 years a practitioner of Lowell, Mass.; died at his home, September 4, after an invalidism of several years, aged 90.

William D. Neel, M.D. University of Louisville (Ky.) Medical Department, 1879; of Chicago; died at a hotel in Gloucester, Mass., September 1, after a long illness, aged 58.

J. I. Baker, M.D. Cincinnati College of Medicine and Surgery, 1877; for 35 years a practitioner of Rock Creek, Ohio; died recently after an illness of two weeks, aged 81.

John J. Everhard, M.D. Rush Medical College, Chicago, 1857; of Seneca, Kan.; died at the home of his daughter in Duluth, Minn., August 30, from senile debility, aged 78.

LeGrand Wheeler (License, Mich., years of practice, 1900); for 50 years a resident of Muskegon, County, Mich.; died at his home in Wolf Lake, August 30, aged 76.

Jonathan Kemp Haynes, M.D. Albany (N. Y.) Medical College, 1858; for many years a practitioner of Hoosick, N. Y.; died in that place August 27, aged 84.

Maxey G. Lee, M.D. University of Maryland School of Medicine, Baltimore, 1888; died recently at his home in Hartsville, S. C., from cirrhosis of the liver.

Daniel T. Black, M.D. Physio-Medical College, Cincinnati, 1878; died at his home in Fort Jefferson, Ohio, September 1, after a long illness.

Henry A. Dawley, M.D. Detroit College of Medicine, 1892; of Lansing, Mich., formerly of Williamston, Mich.; died recently.

William B. Boyd, M.D. Atlanta (Ga.) Medical College, 1861; died suddenly at his home in Mineral, Va., June 15, aged 70.

Ethan Allen (License, Ind.); died recently at his home in Laporte, Ind., from uremia, aged 75.

Medicolegal

Testimony by Patient Not Waiver of Privilege.

The Supreme Court of Minnesota holds, in the personal injury case of Hillary vs. Minneapolis Street Railway Co., that, under the provisions of subdivision 4 of section 4660 of the Revised Laws of Minnesota of 1905, unless the privilege is waived, a physician can not testify as to any information acquired by him in attending his patient. The privilege is not waived by the mere fact that the patient testifies concerning his condition while receiving treatment.

Physician Declining to Testify as Expert on Insanity—Fees for Experts.

The Supreme Court of Missouri, Division No. 2, says, in the case of State vs. Bell, that, while non-expert witnesses may give their opinions as to the sanity or insanity of a person after stating the facts on which they predicate their opinions, it is conceded by all courts that an expert may give his opinion as to the sanity or insanity of a given person on a hypothetical statement of the facts; but the competency of the witness as an expert must be first satisfactorily shown to the court. It has sometimes been said that the opinion of the witness as to his own qualification is irrelevant and carries no weight with it, but the court takes it that this was said of witnesses who professed to be experts without any evidence that they had the qualifications as such. But when a witness declined, as a physician did here, to testify as an expert, and the only evidence tending to show that he was an expert on insanity was that he was a physician of some twenty-five years' practice, without any showing that he ever had any occasion to treat patients for insanity or had any experience in that particular branch of his profession, and he himself declined to testify as an expert, the court thinks that his answer to a hypothetical question should have been excluded on the ground that he had not been shown to be an expert and therefore was not competent to speak on that subject.

Another physician was asked in this case whether a certain incurable disease, after running six or eight months or a year, would cause paralysis. When this question was propounded to the witness, he answered that that was a specialized question, and he expected to receive remuneration if he was required to give expert testimony. The trial court sustained the witness in his refusal to answer until he had first received his fee for his opinion as an expert. But in so ruling the Supreme Court thinks that the lower court erred.

Whether a physician called to testify as an expert may be compelled to state his opinion on a hypothetical or other question involving his professional knowledge without compensation other than the witness fees allowed all other witnesses by law the Supreme Court says has been a much mooted question.

In Burnett vs. Freeman, 125 Mo. App., 683, the authorities on both sides of the proposition were carefully collated by Judge Ellison, and the conclusion was reached by the Court of Appeals that a witness called to testify as an expert, whether a physician or an expert in any other branch of knowledge, could be compelled to state his opinion on a hypothetical or other question involving his professional knowledge without further compensation than that allowed by law to other witnesses. Said the court: "It is the duty he owes to the state in aid of its orderly existence and in return for which he enjoys its protection and the administration of its laws in his behalf; not least of which would be the compulsion of other experts, whether they be the man who practices a profession, the artisan, the artist, the tradesman, or other person to come to his aid when needed in litigation in which he might unfortunately be involved." "It should be remembered that the duty the expert owes to the state, as a performance of citizenship, rather than a rendering of service to an individual, pertains to an obligation to give the court

the benefit of the knowledge he has in store at the time he is called on. He can not be required to especially fit himself for lines of inquiry. He should not be expected to make examinations, perform professional service, and the like, for that is not the office of a witness. He could not be compelled to do that any more than an ordinary person, with no knowledge of the facts pertaining to a case, should be required to go and post himself so as to become a witness."

After a full consideration of the various cases and the very satisfactory opinion of the Court of Appeals, the Supreme Court thinks that the Court of Appeals reached the proper conclusion on this question and supported it by satisfactory reasoning. Ex parte Dement, 53 Ala., 389; Summers vs. State, 5 Tex. App., 377; State vs. Teipner, 36 Minn., 537.

Liability of Osteopaths for Malpractice.

The Kansas City Court of Appeals says that the case of Robertson vs. Wenger and another was an action for malpractice. The petition charged that the defendants held themselves out as healers of physical injuries, ailments and diseases, their treatment being commonly known as that of osteopathy; that at the date mentioned the defendants undertook to treat the plaintiff for injuries he had theretofore suffered by a fall; and that while so treating the plaintiff it was their duty to use reasonable care and skill; that the defendants failed in their duty, in that they negligently treated the plaintiff for a dislocation of the hip joint, when in fact no such dislocation existed, and the defendants in treating the plaintiff for said supposed dislocation of the hip joint did so violently, unskilfully and negligently manipulate, handle and deal with the plaintiff's body that they fractured and broke the plaintiff's left femur or thigh bone in two places, one place being at or near the juncture of the neck and shaft of the femur, and the other in the shaft proper of the femur about three inches below the great trochanter; and that the defendants after breaking the femur did so negligently and unskilfully treat said fractured parts that they were viciously and faultily healed and joined together, that is to say that they were not joined and united in apposition, but were permitted to heal in a misshapen and malformed manner. The answer of the defendants admitted that they were osteopathic physicians, but denied all the other allegations of the petition. The evidence of the plaintiff tended to prove the allegations of his petition, and that of the defendants to controvert that of the plaintiff.

The error complained of on this appeal was the action of the trial court in giving in behalf of the defendants an instruction which was as follows: "The jury are instructed that in this case the defendants, Drs. Wenger and Wood, are not charged by the plaintiff with being unskilful or with a lack of professional skill and knowledge, or as not being properly trained and qualified physicians, but that in the examination or diagnosis and treatment of plaintiff's injuries they (defendants) did not use ordinary skill, but negligently and unskilfully treated plaintiff. Hence, if you believe and find from the evidence that in the examination and treatment of plaintiff's injuries defendants used such reasonable care and diligence as is customarily used by physicians of ordinary skill under similar circumstances, the plaintiff can not recover herein, and your verdict must be for defendants." The objection to the instruction was that it removed from the consideration of the jury the question of the defendants' unskilfulness and want of knowledge. The contention of the defendants was that the question of the defendants' skill and knowledge was not made an issue by the pleadings.

It is held that "a petition charging a surgeon with malpractice, which alleges that he undertook to reduce and set a bone and to attend, cure and heal the same, and also alleges that he promised carefully and skilfully to perform said service, but that he carelessly, negligently and unskilfully failed to set, locate and reduce the dislocation and bind up, dress and secure the same, taken altogether, does not set out an express promise to cure, but only such an undertaking as the law implies, which is to employ reasonable skill and diligence." Vanhooser vs. Berghoff, 90 Mo. 487. "In accepting a patient the physician says that he possesses and will exercise reasonable skill and judgment to discover the trouble of the patient, and whether it is curable." And, "if the failure of a physician to discover and cure the trouble of his patient is because the physician does not possess reasonable skill, or because he does not exercise such skill, he is not entitled to any pay for his services." Logan vs. Field, 192 Mo. 54. The allegations of the petition that the defendants held themselves out to the world as healers of diseases and physical injuries and their undertaking to heal the plaintiff was sufficient to raise the implied obligation that they possessed the skill and knowledge necessary for the purpose. The plaintiff's instruction No. 1 seemed to comply with the plaintiff's theory of the case, and was a proper application of the law to the facts of the case; but it did not necessarily follow that the one given for the defendants was erroneous and misleading, although the court told the jury that the defendants' skill and knowledge were not put in issue by the pleadings, as the jury were at the same time told that the defendants' liability depended on the question of their exercise of reasonable care and skill in the treatment of the defendants' injuries. When we say that a physician is obligated by his undertaking to use skill, it is necessarily and unavoidably implied that he must have such skill, otherwise he could not exercise it.

This court was not in a position to know whether there was any evidence tending to show that the defendants did not possess the requisite professional skill and knowledge, but that could make no difference, as proof of the failure to exercise such skill and knowledge to the satisfaction of the jury would have entitled the plaintiff to recover, and, if he failed to make such proof, the inference would be that they possessed and exercised such skill and knowledge. In other words, the defendants could not have successfully controverted the plaintiff's evidence without having shown such to be the case.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal.

September 3.

1 The Country Doctor's Relations with the Metropolitan Institutions and Specialists. G. Osgood, Rockland, Mass.
2 *Study of One Hundred and Thirty-six Cases of Diarrhea Occurring on the Boston Floating Hospital During the Summer of 1907. W. P. Lucas, Boston.
3 Deceptive Conditions in the Hip Joint. R. Hammond, Providence, R. I.
4 Erythema Multiforme with Visceral Lesions. J. N. Hall, Denver.

2. **Diarrhea on the Boston Floating Hospital.**—Lucas selects for consideration 136 out of 147 cases of diarrhea occurring among 187 patients admitted to the Boston Floating Hospital between July 2 and Sept. 14, 1907. The 136 cases were chosen as representing the severest type of uncomplicated summer diarrhea. He describes the wards, the milk supply, the prominent symptoms of the conditions, and the general method of treatment, and cites a number of illustrative cases. He concludes as follows:

1. The best of our present methods of treatment in these cases is starvation, carefully watched, followed by any one of the weak mixtures, low in fat.
2. The guide to starting milk in any form is the general picture the child presents rather than the temperature or any one symptom.
3. Saline infusion is one of the most valuable aids in carrying out the starvation treatment and supplying the liquid quotient.
4. The benefit of colon irrigation is overestimated, though useful in moderation; once in twenty-four hours being sufficient.
5. Lavage is a very important factor when the infection has reached or attacked the stomach.
6. Stimulation is of little value in extreme cases.

New York Medical Journal.

September 5.

5 Cancer of the Rectum. J. P. Tuttle, New York.
6 *Essentials of Voice Production. G. Hudson-Makuen, Philadelphia.
7 *Tuberculin as an Adjunct to the Home Treatment of Pulmonary Tuberculosis. J. A. Miller, New York.
8 Conjunctival Tuberculin Test. G. Mannheimer, New York.
9 Calmette Reaction as a Diagnostic Aid. C. P. Oberndorf, New York.
10 Tuberculo-ophthalmic Reaction. F. L. Christian, Elmira, N. Y.
11 Preliminary Report on the Effect of Repeated Injections of Tuberculin on Lymphatic Organs. S. G. Dixon, Harrisburg, Pa.

6. **Voice Production.**—Hudson-Makuen defines voice as a moving column of breath set in vibration by its own impact with the vocal cords and reinforced by its diffusion through the various resonance chambers into the surrounding atmosphere. The best methods of doing this he regards as the essentials of voice production. The methods differ slightly for speech and song. To the speaker the vocal effort is secondary to the articulatory effort; to the singer the vocal effort is paramount. The difference is most marked in the use of the larger muscles of respiration. In singing, the diaphragm is held in strong contraction during a greater period of time, and the respirations are more prolonged; while in speaking, the diaphragm and other muscles are constantly changing with the varying degrees of inflection, accentuation and emphasis. Speech, the author asserts, is something more than voice production: It is the product of the combined coördinate action of the two vocal mechanisms with a third, the articulatory mechanism, and complete harmony of action is necessary. He divides speech mechanisms into central and peripheral; the central being located in the brain and spinal cord. The cerebral centers are in the left hemisphere and he designates them as follows:

The auditory center in which are stored memories for spoken words; the visual center, in which are stored memories for written and printed words; Broca's center, in which are stored memories for motor speech impulses; and the graphic center, in which are stored memories for the movements of the hand in writing. Hudson-Makuen discusses the development of speech in a child and states that the chief receptive avenue for speech is through the hearing, and that when the organs of hearing are defective speech will be correspondingly impaired. No two individuals hear speech sounds exactly alike or develop exactly the same kind of speech habits. An important period in the development of a child is when it commences voluntarily to use intelligent speech instead of the meaningless babble of the infant. The higher intellectual faculties begin to assume control, as it were. Defective speech, he believes, suggests defective mentality.

7. **Tuberculin in Home Treatment of Tuberculosis.**—Miller discusses the use of tuberculin as an adjunct to the home treatment of pulmonary tuberculosis, and reports the results in 94 cases. In the selection of cases, in no early or favorable cases in which sanitarium or other climatic treatment was possible were the patients kept in New York. With two exceptions no patients with fever were treated. Tuberculin treatment was urged only for patients who were not progressing favorably without it. As a result the patients treated have been long-standing cases, gradually drifting into more or less chronic invalidism. Three preparations of tuberculin were used: 1, Koch's original tuberculin (O T); 2, bacillus emulsion (B E); 3, Denys' bouillon filtrate (B F). So far as possible, all constitutional reactions to the tuberculin were avoided and the so-called clinical method of determining the proper dosage was employed and proved satisfactory. Miller reports the results in these cases in some detail and concludes practically as follows:

Even four years' experience is hardly sufficient to warrant any absolute conclusions as to the therapeutic value of tuberculin. The results of any method of treatment in tuberculosis are influenced by innumerable factors which may very easily mislead the most conscientious observer. Statistics are probably of little real value under such circumstances, less so perhaps than the gradual accumulation of clinical impressions from continued study. As far as statistics go it would seem that any form of treatment must have considerable efficacy which is able to show the improvement in condition, with such a degree of permanency in such a class of cases, and under such conditions as are here reported. The series has included several patients in whom the results of the tuberculin appeared truly remarkable; in some others there has been distinct disappointment, especially in a few who seemed at first to do exceedingly well, and then relapsed later, a condition which is customary in tuberculosis, but which one would hope not to find when any degree of immunity had been established. It can not be too strongly emphasized that if good results are to be obtained by therapeutic use of tuberculin, the greatest patience and care must be exercised in every particular. The dilutions should be made only by some one who is skilled in such work. Any evidence of intolerance must be carefully noticed, and the progression of dosage correspondingly regulated; and lastly, and perhaps most important, the duration of treatment must be extended over a considerable time, preferably from six months to a year. The sum of impressions and results leads to the opinion that we have in tuberculin an active and useful aid in the treatment of pulmonary tuberculosis, which, while not truly specific, is probably a distinct step in that direction. We are, therefore, encouraged to continue its use in suitable cases, and shall do so until some better specific agent is available.

Medical Record, New York.

September 5.

12 *Influence of Overweight and Underweight on Vitality. R. Symonds, New York.
13 Case of Congenital Umbilical Hernia. W. E. Magruder, Baltimore.
14 Case of Brain Tumor with Autopsy. M. J. Karpas, New York.
15 Obstruction of the Bowels, Simulating Appendicitis. J. McF. Gaston, Atlanta, Ga.
16 Sigmoiditis. M. L. Bodkin, Brooklyn, N. Y.
17 *Narcotic Method of Treating Morphinism. C. J. Douglas, Dorchester, Mass.
18 Effective Treatment of Membranous Colitis. D. Wark, New York.
19 Tube for Self-Insufflation of Vapor into Middle Ear. P. R. Wood, Marshalltown, Ia.

12. **Overweight and Underweight.**—Symonds discusses overweight and underweight in relation to vitality, the causes of death in these cases, and the differences between the effect of overweight and of underweight. The effect of overweight is influenced by two fundamental factors: 1, the percentage of overweight; 2, age of the individual. The mortality increases markedly as the weight rises above 20 per cent. in excess, and to a still greater degree when the weight passes 30 per cent. in excess. This holds true for all types and all ages above 30 years. Beyond this period the mortality of overweights rises rapidly with the age and with the weight. In women the standard must be made a little higher than that of men, but with this allowance the effect of overweight among women is found to be just as bad as among men. As to underweight the effect is slight when the weight is not more than 20 per cent. below standard. The association of dyspepsia with underweight is a serious matter with those below 25 years of age, and has long been recognized as serious with a tuberculous family history especially in the younger individuals. In women an allowance has also to be made as in overweight. Discussing causes of death of those suffering from overweight and underweight, he states that overweights suffer more than underweights in the class of acute general diseases. Overweight seems to secure a marked degree of immunity from tuberculosis. Organic diseases of the heart show a decided excess among overweights and as great a deficiency among underweights. Diabetics are scarce among underweights, but numerous among overweights. Pneumonia is almost twice as fatal among underweights as among overweights. Bright's disease, both acute and chronic, is nearly twice as prevalent among overweights as in general experience. No overweight, whether man or woman, died of old age or senility according to Symonds' experience. He is convinced that the same percentage of overweights is more serious than if it were underweights, but in those below 25 years a moderate degree of overweight is more favorable than an underweight. The conditions are reversed above 30 years of age.

17. **Narcotic Treatment of Morphinism.**—Douglas holds that it is the pain and suffering caused by the withdrawal of morphin that is the main factor of difficulty in the treatment of morphinism. He considers the condition comparable to a surgical operation, and his plan is to abolish the pain caused by morphin withdrawal, on the same principle that surgical pain is abolished—that is, by keeping the patient either asleep or so thoroughly narcotized during the painful hours that follow complete withdrawal of morphin that he experiences no suffering. The abolition of pain is the kernel of the whole problem. Nearly every hypnotic or narcotic remedy in the materia

medica may be required to meet individual cases. He warns, however, against relying exclusively on hyoscin, which is a very uncertain and often dangerous drug. Each morphin patient must be studied and treated individually. He believes all cases of cures supposed to have been effected by the sudden withdrawal of morphin without the aid of remedies to subdue the suffering, to be cases in which the patient has contrived to use morphin clandestinely.

American Journal of Physiology, Boston.

July.

20 *Influence of Internal Hemorrhage on Chemical Changes in the Organism, Especially Protein Catabolism. F. S. Weingarten and P. B. Crohn, New York.
21 Physiologic and Pharmacologic Studies of the Ureter. D. R. Lucas, New York.
22 Further Evidence of the Presence of Vasodilator Fibers to the Submaxillary Gland in the Cervical Sympathetic of the Cat. F. C. McLean, Chicago.
23 *Available Alkali in the Ash of Human and Cow's Milk in Its Relation to Infant Nutrition. J. H. Kastle, Washington, D. C.

20. **Hemorrhage.**—Weingarten and Crohn find no special changes in the digestion, assimilation, or metabolism, after hemorrhage artificially induced in healthy dogs. In a general way, the total excretions of nitrogen, sulphur and phosphorus were slightly increased after internal hemorrhages. The authors make the following practical application of their work: It would seem that with an organism in healthy condition a hemorrhage which did not endanger life, e. g., from 1 to 2 per cent. of body weight, would do little or no harm, especially if intraperitoneal. Repeated losses of blood would cause increasing damage, but relatively less if intra-abdominal instead of external. It is only after great cumulative losses or after an overwhelming single hemorrhage that the system does not recover promptly, if at all. In the case, then, of such losses of blood as occur from a ruptured ectopic pregnancy or ruptured spleen or liver, with the hemorrhage stopping without surgical interference, the blood, *per se*, may be not only devoid of harm, but of special use in the body. Such use would be influenced, however, by possible infections and adhesions. If surgical intervention were contemplated in such cases, the surgeon would have to consider these possibilities and the probable effects. With the patient placed so that the blood would gravitate toward the diaphragm, i. e., with feet raised, the blood would collect where absorption would be very rapid, where infection would best be met, and where, if adhesions should form, they would do a minimum of harm, i. e., between the subphrenic organs and away from the intestines and pelvic viscera. The more rapid the absorption, the less the likelihood of adhesions. The authors fully appreciate the fact, however, that observations of this kind pertaining primarily to the dog can not be applied automatically to man. Very thorough and very discriminating study of human beings must be conducted before such conclusions can be accepted for practical guidance.

23. **Alkali in Milk.**—Kastle finds that while cow's milk contains from 2.5 to 3.5 per cent. as much mineral matter as human milk, the ash of the two milks contains approximately the same amount of available alkali. The salient points of difference between the two kinds of milk seem to be: 1, Human milk contains relatively more of its mineral matter in utilizable form than cow's milk; 2, it can supply the organism of the child with relatively larger amounts of available alkali in proportion to the proteid than cow's milk; 3, it contains much less proteid; and 4, it contains a more readily absorbable variety of fat. An infant fed on cow's milk receives, therefore, an excessive amount of proteid, and the amount of alkali is insufficient for the proper digestion and metabolism of the proteid and fat. Acidosis arises from the excessive proteid metabolism and from the formation of acids from the fat and, if the fat is allowed to rise above 3.75 per cent., intestinal disturbances occur. There is excessive excretion of salts along with the products of proteid metabolism in the urine, and mineral matter is also withdrawn through the bowels in consequence of the difficult absorbability of the fats, so that the organism becomes progressively poorer in mineral matter. The utility of certain practices in infant feeding, such as the feeding of skimmed milk and buttermilk, the addition of alkaline substances to the milk, the use of sodium citrate and orange juice, is explained by these considerations. These methods either reduce the amount of fat or add mineral matter.

American Journal of Obstetrics, York, Pa.

August.

24 *Development of the Technic of Modern Gynecologic Operations. A. Martin, Berlin, Germany.
25 *Is Pubiotomy a Justifiable Operation? J. W. Williams, Baltimore.
26 *Choice Between the Intrapelvic and Abdominal Methods of Delivery in the Lesser (Non-Absolute) Degrees of Mechanical Obstruction. E. Reynolds, Boston.
27 *Pressure Conditions Within the Abdomen. R. R. Smith, Grand Rapids, Mich.
28 Foreign Bodies Left in the Abdominal Cavity After Operation. P. Findley, Omaha, Neb.
29 External Antepartum Examination. W. W. Reed, Boulder, Colo.
30 Interesting Obstetrical Cases. T. C. Smith, Washington, D. C.
31 Obstetrical Drawers. J. G. Drennan, St. Thomas, Ont.

24, 25, 26. Abstracted in THE JOURNAL, July 4, 1908, pages 70 and 71.

27. **Pressure Conditions Within the Abdomen.**—Smith asserts that investigation into the question of pressure conditions within the abdomen has not been so extensive as its importance demands. Though the subject seems to be of only theoretical interest to gynecologists and obstetricians it is necessary, in considering various abdominal and pelvic conditions, that our ideas concerning it should be clear—particularly in uterine displacements. He discusses the anatomy of the abdomen in relation to atmospheric and internal pressure, and goes into detail concerning the factors which raise or lower the atmospheric pressure within the abdominal cavity, illustrating his meaning by diagrams. He concludes by stating that atmospheric pressure within and without the abdomen is almost exactly balanced, variations at any point being caused by factors to be enumerated. There is no special universal positive pressure, which has so frequently been assumed. Physiologic increase or decrease of volume is attended by insignificant or no changes in pressure—the balance is practically maintained. A marked increase of volume from pathologic conditions often takes place without disturbing the balance; this varies in different individuals. Hydrostatic pressure at any point within the abdomen varies with the position of the body and the depth of superimposed organs. Negative pressure at the uppermost points is possible under certain conditions when the walls of such uppermost points are rigid. In the upper abdomen in the upright position a negative pressure may exist, which has more or less to do with the support of the viscera. Respiration causes small waves of pressure. Coughing, sneezing, defecation, labor and many movements of the body cause marked increase in intra-abdominal pressure by contraction of the muscles in the abdominal walls. Such pressure is transmitted in all directions and without diminution to every part of the contents and interior of the abdomen. These facts, he declares, should be applied to the problems of gynecology and obstetrics with greater accuracy than in the past.

Annals of Surgery, Philadelphia.

August.

32 Tetany Following Thyroidectomy Cured by Subcutaneous Injection of Parathyroid Emulsion. J. H. Branham, Baltimore.
33 *Sinus of First Branchial Cleft. C. P. Flint, New York.
34 Technic of Early Operation for Removal of Tuberculous Cervical Lymph Nodes. C. N. Dowd, New York.
35 Desmoid Tumors of the Abdominal Wall. H. B. Stone, Charlottesville, Va.
36 Syphilis of the Liver. A. MacLaren, St. Paul, Minn.
37 Primary Carcinoma of the Appendix. L. J. Hammond, Philadelphia.
38 Hernia of the Appendix, Complicated with Appendicitis. D. W. Bashan, Wichita, Kan.
39 Enormous Endotheliomatous Cyst of the Great Omentum. E. M. Hasbrouck, Washington, D. C.
40 *Inconsistencies of the Gauze Pack. H. A. Royster, Raleigh, N. C.
41 Prevesical Abscess. E. H. Eising, New York.
42 *Symptomless Hematuria. F. R. Hagner, Washington, D. C.
43 *Cystic Degeneration of the Kidney. C. M. Nicholson, St. Louis.
44 Venous Thrombosis and Hydrocele of the Inguinal Canal. J. Ransohoff, Cincinnati, Ohio.
45 Comparative Value of Various Measures for Relief of Prostatic Enlargement. A. Schachner, Louisville, Ky.

46 Surgery of the Prostate. S. Alexander, New York.
47 *Musculospiral (Radial) Paralysis Due to Dislocations of the Head of the Radius. D. Stetten, New York.
48 Congenital Defect in the Ulna. F. D. Patterson, Philadelphia.
49 Surgical Treatment of Bunyon. C. H. Mayo, Rochester, Minn.
50 New Motor for Bone Surgery. W. S. Bryant, New York.

33. **Sinus of First Branchial Cleft.**—Flint reports an interesting case of this rare condition, showing that lateral fistula in the neck, of congenital origin, does not always originate in the second branchial cleft. The points of particular interest in the case are: First, lateral sinus of the neck from the first cleft; second, presence of thyroid tissue; third, the relation to the structures of the second arch, the sinus being behind and underneath the upper portion of the sternomastoid muscle.

40. Abstracted in THE JOURNAL, Jan. 25, 1908, p. 311.

42. **Hematuria.**—Hagner reports three cases of symptomless hematuria in which hemorrhage ceased after catheterization of the ureters. The patients were males, aged 45, 53 and 56 respectively; two appeared slightly anemic. In all three patients the blood came from the right ureter, and in all the ureteral catheter was passed without meeting with any obstruction. In the article Hagner offers no explanation of the condition.

43. **Cystic Degeneration of Kidney.**—Nicholson reports a case, discusses the nature of the condition, and arrives at the following conclusions: 1. In the cells lining the cysts, the entire row are alike, and apparently in the same stage of secretion, that is, the nuclei are poor in chromatin and show a vesicular condition. In the normal convoluted tubules this condition is present in a few cells only, while many are rich in chromatin and show filaments or striations known as "ergastoplasm." This condition of the normal convoluted tubules is met with in active secreting cells. While the condition of the cells lining the cyst would correspond to a stage in secreting activity, it is not probable that the entire row lining the cyst would show the same stage in secretion because we have no proof that secretion occurs in cells simultaneously. Therefore, in his opinion, the cells lining the cysts are less active in secreting power than normal epithelium. 2. The various theories of the origin of cystic kidneys have been discussed previously in this article. From the study of the microscopic sections he finds that the smallest cysts are lined with the same epithelium as that lining the convoluted tubules. Therefore, one must conclude that the cysts originate in the convoluted tubules by dilatation and proliferation of lining epithelium. In the case reported he states that the cysts did not arise in the glomeruli, the blood vessels, or the connective tissue.

47. **Musculospiral Paralysis.**—Stetten discusses musculospiral paralysis, especially that form due to dislocation of the head of the radius, which he asserts is a distinct type of nerve injury, and quite as definite and characteristic as any other form of injury to this nerve. He states that in every case of anterior dislocation of the head of the radius the two divisions of the musculospiral nerve are in danger, and it is a fortunate accident if they escape. In actual occurrence this injury is rare, but compared to the frequency of joint injury itself, it is not unusual. It is most likely to occur when the dislocation accompanies ulnar fracture and when the direction of the dislocation is forward and slightly outward. The nerve is almost invariably injured below its point of division into the posterior interosseus and radial nerves; one or both branches may be caught by the dislocated head of the bone. The symptoms are practically those of the typical musculospiral paralysis, and may vary greatly in degree or extent, depending on whether one or both nerves be injured, and how badly. The prognosis, Stetten says, is good under appropriate treatment, which is practically the same as that for dislocation, simple reduction, if possible, and generally resection of the head of the radius in old cases, with nerve suture if necessary. Should the nerve be uninjured in a dislocation of the radial head, Stetten warns that its proximity to the bone should be borne in mind when the reduction is done, and care should be exercised not to injure the nerve by pressure, hyperextension, or careless operative technic.

Southern Medical Journal, Nashville, Tenn.

August.

51 Hernia into the Duodenojejunal Fossa with Report of a Case Causing Complete Obstruction. J. A. Crisler, Memphis.
52 Recent Advances in the Technic of Thoracotomy and Pericardiotomy for Wounds of the Heart. R. Matas, New Orleans.
53 A Medicolegal Case, Involving *X*-Ray Testimony and Its Bearing on a Recent Proposal to Regulate Medical Expert Testimony. E. R. Corson, Savannah, Ga.
54 What We Should Know About Malarial Disease. W. Krauss, Memphis, Tenn.
55 Removal of the Third and Faucial Tonsils. H. Wood, Nashville, Tenn.
56 Treatment of Pelvic Inflammatory Disease. G. R. Holden, Jacksonville, Fla.
57 *Neurasthenia. C. M. Nice, Birmingham, Ala.
58 Jaundice and Its Significance. S. Harris, Mobile, Ala.

57. **Neurasthenia.**—Nice states that whatever the direct causes may be, the indirect can best be classified as hereditary and acquired. The principal acquired causes are overwork, worry and mental strain. Among the predisposed, ambition, financial trouble, love and bereavements are strong factors. Infectious and chronic diseases are occasional causes, and of these influenza with its long period of convalescence is the most common. Gross structural changes are also causative factors, as, for instance, carcinoma, ulcer and visceral displacements, abdominal or pelvic. Under certain conditions, trauma, poor hygiene, effort to live up to false ideals, and higher education may be causes. In considering the symptoms, he states that in early life the preliminary picture of neurasthenia is often seen in an easily excited, irritable spoiled child. Sometimes a feeble child has been over-indulged by its parents, and as a result is led to attach too much importance to all personal feelings and grows up to adult life under adverse influences and nervous surroundings. For a time there may be a cessation of nerve explosions and all may go well until, years later, under stress of overstudy, overwork, or illness the patient presents the typical picture of neurasthenia. The individual may be moody and irritable or good natured, but invariably concentrates the mind on the real or fancied bodily ailments. In the cerebral form, loss of memory is a common symptom and insomnia is almost always present. Vertigo and dizziness are usually common and the face frequently flushes. The cerebral vessels often seem to fill to the point of bursting and the patient must fan to get breath. Headache is often intense and there is a sensation of constriction around or of pressure within the head. These symptoms may vary in severity; they may be referred also to the organs of special sense. In spinal neurasthenia the symptoms are of a paretic and irritative character, the most frequent complaint being of weakness and weariness of the back. Nice refers to Kelly's statement that backaches are more frequently due to neurasthenia than to pelvic or kidney diseases. The condition may grow into a real motor deficiency and the patient may become practically bedridden. There may be disturbances of coördination and the reflexes may be exaggerated. The gastric type is common and is known by such names as nervous dyspepsia, gastrosis, and neurasthenia-gastrica (Ewald), and the symptoms are familiar to every practitioner. The symptoms of the sexual form are also well known.

In the cardiovascular group the symptoms are most distressing as the patient has a sensation of suffocation and impending death, which is especially hard to overcome. This condition is frequently associated with the gastric form. Nice emphasizes the importance of careful physical examination, and declares that the disease should not be diagnosed by exclusion as is so often done. He believes that prophylactic treatment should be commenced before birth and continued throughout life. The treatment, he says, combines all the methods included in the definition of therapeutics, with drugs last and to be considered least. There is no specific treatment and the individual patient must be carefully studied as each case is a law unto itself. He emphasizes the importance of hygiene and cheerful surroundings, and simple, wholesome diet. A daily program should be outlined and the patient compelled to carry it out. Drugs may be necessary at first for the headaches, insomnia and constipation, and electricity may be useful. He refers to the value of psychotherapy in the hands

of an experienced clinician. Marriages among neurotics should be discouraged.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

August.

59 *Difficulties and Dangers in Surgical Operations on the Biliary Tract. M. H. Richardson, Boston.
60 Psychotherapy. H. W. Cook, Minneapolis.
61 Case of Acute Fibrinous Bronchitis. D. D. Talley, Richmond, Va.
62 Migraine. H. H. Levy, Richmond, Va.
63 *Headache of Intracranial Disease. W. B. Cornell, Baltimore.
64 Eyestrain as a Cause of Headache. H. O. Reik, Baltimore.
65 Headaches of Renal Disease. M. M. Pearson, Bristol, Va.
66 Headaches Due to Toxemic Conditions. C. J. Andrews, Norfolk, Va.
67 Headaches Due to Nasal Sinus Infections. B. R. Kennon, Norfolk, Va.

59. **Difficulties and Dangers of Biliary Surgery.**—Richardson states that he has no means of knowing just what impression the medical profession as a whole has formed of gall-bladder surgery, except that many men undertake it without adequate training. Many beginners in surgery, seeing the ease with which skilled operators perform difficult operations on the biliary tract, attempt to perform similar operations, though in many cases they are unaware of the obstacles which may arise in complicated cases, or the dependence of speed and ease of operating on years of painful repetition. He asserts that it is a fault of writers and teachers of the present to omit vivid portrayal of the errors and disasters of surgery, and calls attention to the fact that medical journals are filled with reports of successful cases as if defeats and poor results were unknown. Gall-bladder surgery demands special knowledge and experience; and the first and most indispensable bit of knowledge is that lesions of the biliary tract can not be either diagnosticated or prognosticated in their fullest extent. He enumerates conditions which may simulate the picture of gallstone disease and declares that no man should prepare to operate on gallstones unless he realizes that his diagnosis may be wrong, and is prepared to operate on whatever condition is found when the abdomen is opened. Nothing seems easier and safer than removal of a gallstone or two from the gall bladder, after say, a hysterectomy, when an experienced hand has located them. But even the simplest gall-bladder operation has dangers which far exceed those based on the operator's experience, if that is meager. And the case that is easiest, least complicated, and, perhaps, most important, may be the very one to go wrong. Patients die after the simplest cholecystostomies; the outcome in cholecystectomies can never be foretold; even in the most ordinary cases choledochotomies imperil life. In making a diagnosis the history is important, but the physician must be able to "size up" the patient more or less accurately, and must also be able to judge whether pain is severe or trivial, feigned or real. Richardson describes in some detail the difficulties attending the location of stones, including some personal experiences. Some of the methods of treating the gall bladder Richardson believes to be dangerous. Drainage through the cystic duct, he states, is unsatisfactory and hazardous; he prefers excising the gall bladder with the diseased portion of the duct. He discusses the danger of hemorrhage, and states that a danger seldom referred to is that of tying the hepatic duct or common duct with the cystic. Among the dangers liable to be encountered in the after-treatment he enumerates hemorrhage, the burrowing of bile, and deep local sepsis, with occasionally peritonitis—all dependent on or influenced by drainage and its management. Illustrative cases are cited.

63. **Headache of Intracranial Origin.**—Cornell states that headache may be due to either functional or organic intracranial disease. To the former group belong neurasthenia, psychasthenia, and hysteria—the so-called psychoneuroses. In these conditions the headache may assume any form, but is seldom acute. In neurasthenia and psychasthenia the pain is often indefinite in character, usually dull, but constant and frequently combined with various cephalic paresthesias. In hysteria, on the other hand, the pain may be severe, boring, gnawing, and narrowly localized. Whatever the form, it never resembles the pain of neuralgia or migraine, nor does it definitely correspond to certain nerve distribution. In regard to headache due to organic causes, he states that this form stands out in sharp contrast to other types, so far as severity is concerned. He discusses the various lesions which may cause this form of headache. In syphilis the most violent forms occur when the meninges are involved. The pain is worst at night, when it may become paroxysmal. Syphilitic endarteritis in itself may cause pain. The differential diagnosis of intracranial disease frequently presents great difficulty. The treatment of the headache of organic origin is largely that of the cause. Practically all varieties due to intracranial disease are made worse by mental effort, emotion, taking food, and the imbibition of alcohol. The treatment of headaches of the functional group furnishes opportunity for the exercise of therapeutic skill. Many patients are overdrugged and would do better on a placebo, while psychotherapy will effect a cure in many instances. Much depends on the proper handling of the case in a general way without paying too much attention to the headache itself.

Interstate Medical Journal, St. Louis.

August.

68 *Foreign Bodies in the Abdominal Cavity. H. S. Crossen, St. Louis.
69 Examinations of the Feces as a Routine Procedure. J. S. Myer, St. Louis.
70 *Progressive Hemiplegia of the Left Side Due to Gliosis and Vascular Lesions of the Right Centrum. F. R. Fry and M. B. Clopton, St. Louis.
71 *Dermatitis Following Use of Walnut Juice Hair Dye. W. A. Hardaway, St. Louis.
72 Bichat: His Life, Researches and Character. A. C. Eycleshymer St. Louis.

68. **Foreign Bodies in Abdominal Cavity.**—Crossen discusses the leaving of foreign bodies in the abdomen after laparotomy, and deals with sponges and instruments separately. Sponges and pads he considers under the heads of how the accident occurs, its consequences, and how it may be made impossible. In regard to the last point he refers to the method of using no detached pads or sponges, either large or small, but one continuous piece, as described in detail in the *Interstate Medical Journal*, September, 1907 (abstracted in THE JOURNAL, Oct. 26, 1907, p. 1474). He particularly cautions against cutting a gauze strip sponge in the course of operation. He has now given this method a year and a half's routine trial with complete satisfaction. All reliance on counting, tapes or tags, etc., is avoided. He discusses the width of the strips, the cost, and gives detailed instructions for nurses how to prepare the strips for operation. He concludes with medicolegal considerations, detailing the famous suit against Professor Kosinski in 1897.

70. **Progressive Hemiplegia.**—Fry and Clopton report a case of progressive left hemiplegia due to gliosis and vascular lesions of the right cerebrum. Operation was discouraged by the authors, as it was felt to offer but slight chance of benefit, but was performed at the desire of the relatives. Death ensued twenty-four hours later without any improvement in the hemiplegia. The pathologic findings are reported, and the authors consider that this case well illustrates the fact that marked subjective sensory phenomena, i. e., paresthesias of various descriptions, often appear in the absence of objective sensory signs. The subjective often antedate for a long (?) time the appearance of the objective signs in the same areas or territories. They have observed this fact, i. e., the later appearance of the objective signs, in lesions of the brain, of the cord and of the peripheral nerves, and have referred to it in previous papers.

71. **Dermatitis from Walnut Juice.**—Hardaway calls attention to the fact that he has encountered many cases of dermatitis consequent on the use of walnut juice as a hair dye. Sometimes the preparation is home-made, sometimes bought from an apothecary. The amount of inflammatory reaction varies in different persons. Sometimes the attack is acute, involves the face, neck and ears, and presents such an amount of accompanying edema that the eyes are closed and the features unrecognizable. The subjective symptoms are burning and prickling sensations and intolerable tension. In some persons the condition is merely one of subacute inflammation, renewed from time to time by the reapplication of the dye, and limited to the ears and the skin at the margin of the scalp.

In persons of an "eczematous habit," the dye has apparently evoked a veritable eczema, which has extended to the arms and trunk. The hairy scalp itself is not particularly involved, since, as is well known, this region is naturally very insensitive.

Illinois Medical Journal, Springfield.

August.

73 *Arteriosclerosis. T. J. Pitner, Jacksonville.
74 *Some Points Concerning the Treatment of Diabetes Mellitus, with Special Reference to the Oatmeal Diet. J. B. Herrick, Chicago.
75 *Baths and Exercises in Treatment of Heart Disease. R. H. Babcock, Chicago.
76 *Principles of Treatment in Cardiovascular Conditions. J. L. Miller, Chicago.
77 Energy Value of Foods. W. S. Hall, Chicago.
78 Etiology and Pathology of Multiple Sclerosis, with Report of Two Cases with Autopsy. P. Bassoe, Chicago.
79 Signs and Symptoms of Multiple Sclerosis. W. Healy, Chicago.
80 Eye Manifestations of Disseminated Sclerosis. H. Gradle, Chicago.
81 *Diagnosis of Insular Sclerosis. S. Brown, Chicago.
82 Course, Prognosis and Treatment of Multiple Sclerosis. G. W. Hall, Chicago.
83 Commoner Forms of Eyeball Injuries. F. Allport, Chicago.
84 *Public Health Laws in Illinois. H. B. Hemmenway, Evanston, Ill.

73, 74, 76. Abstracted in THE JOURNAL, June 6, 1908, pp. 1931, 1932.

75. Abstracted in THE JOURNAL, June 13, 1908, p. 2016.

81. **Insular Sclerosis.**—Brown discusses the diagnosis in the early stages from hysteria, brain tumor and tabes, and considers it advantageous to divide cases according to their mode of onset, as follows:

First.—Those of sudden onset: (a) Paralysis or spasm of various distribution, including and perhaps limited to the ocular muscles, causing diplopia. These may not be accompanied by sensory changes or these latter may predominate. They usually attain their highest point and begin to recede within from a few hours to a few days and may either wholly or partially disappear to recur from time to time at shorter and shorter intervals, in which recovey tends to become less and less complete. (b) There may be epileptiform attacks, with foaming at the mouth and tongue biting or apoplectiform strokes with hemiplegia which usually completely disappears in a few days. (c) Sudden temporary disturbances of vision other than diplopia, with or without vertigo.

Second.—Acute or subacute onset: With the exception of the epileptiform and apoplectiform seizures, any or all of the above symptoms may require from a few days to several weeks to reach their highest point and then slowly recede to recur after a varying period.

Third.—Those with chronic onset: The most common type is some form of progressive spastic paraplegia, in which perhaps for some years there may be no sensory symptoms or sphincter involvement.

Progressive weakness may be limited to only one leg at first. Visual defects in which fundus changes are sooner or later manifest, belong in the second and third divisions. When a given symptom points strongly to disease of the nervous system, but can not be classified with other well-known diseases, insular sclerosis and brain tumor should be kept prominently in mind, as they may give rise to a wide range of symptoms even more diverse than the variety of structures which are the seat of the pathologic process, would seem to justify.

84. **Public Health Laws.**—Hemenway discusses the existing public health laws in Illinois and suggests the following scheme for new legislation to supersede the present system:

1. The state law should compel the appointment of a commissioner of health for every incorporated city or village, and for every county in the state, providing that the commissioner of the county seat shall be the county commissioner of health. The qualifications for such commissioners should be professional only, and previous residence outside of the county, or even state, should be no bar. As far as possible such offices should be permanent. Ultimately it will be necessary that only those who have passed a special examination in sanitary science should be eligible to such appointment.

2. The governor, with the advice and consent of the senate, should appoint a state commissioner of health for a period of four years. Such appointment should be made from a list of three physicians recommended for that position by the incorporated state medical societies; and it should be the duty of each such society to make such recommendations annually to provide for emergency appointments.

3. Examinations for license to practice medicine, surgery or midwifery should be conducted by a board of physicians appointed by the governor from lists recommended by the incorporated state medical societies; and the same board should control the registration of nurses and the license of embalmers. No examiner should be connected with the teaching force of any college.

4. The "board" idea must be abandoned. Some one must be made responsible. The commissioner of health should be empowered to appoint a competent chemist, a bacteriologist, a veterinarian and other necessary assistants, and the enforcement of the pure food law should be under the supervision of the commissioner of health. One chemist or bacteriologist may do work for all portions of the department. The outbreak of scarlet fever in 1907 was an illustration of the unsatisfactory results of the present system. It should have received the immediate and harmonious investigation of the pure food, veterinary, medical and bacteriologic branches. As it was, each probably fearing that he might encroach on the fields of others, no portion of the investigation was thoroughly made.

5. Violations of the various practice acts should be [dealt with] by either the department of justice or by the department of health, not by the license boards. All county and city commissioners should be subject to the jurisdiction of the state commissioner and should render weekly reports to the state office.

He urges greater precautions to guard against bacterial infection of milk and more complete vital statistics.

Long Island Medical Journal, Brooklyn, N. Y.

August.

85 *Ocular Symptoms of Brain Tumors. J. H. Ohly, Brooklyn, N. Y.
86 Treatment of Trachoma. J. C. Hancock, Brooklyn, N. Y.
87 Medical Examiners in Lunacy; Their Responsibility. S. D. Wilgris, Brooklyn, N. Y.
88 New Technic in Perineorrhapy. C. Jewett, Brooklyn, N. Y.
89 Typhoid Fever. R. Durham, Brooklyn, N. Y.

85. **Ocular Symptoms of Brain Tumor.**—Ohly states that almost every form of tumor may be found in the brain. The more common forms are: glioma, tubercle, sarcoma, syphilitic gumma. Somewhat less frequent are: carcinoma, fibroma, lipoma and cysts. The gliomas vary in size from that of a hazelnut to that of a hen's egg. Sarcomas are generally larger. In from 80 to 90 per cent. of brain tumors, optic neuritis or choked disc is present. This is not a localizing symptom. Tumors of the occipital lobe, cerebellum, pons and medulla produce an intense double-sided choked disc, which is an early symptom. Transitory blindness is not infrequent in the early stages of tumors; permanent blindness in one or both eyes may be an early or late sign and is not dependent on local optic nerve involvement. Tumors of any portion of the optic tract may produce hemianopsia if situated more centrally than the chiasm. Those at the chiasm generally produce bitemporal hemianopsia. Tumors located in the optic thalamus or between it and the chiasm give Wernicke's hemianopic pupillary reaction. Those located in the optic radiations or visual centers will give an absence of this symptom. Tumors at the base of the brain produce ocular palsies by direct pressure, and this is an early symptom. When localized in other portions of the brain the palsies are produced by indirect pressure. The ocular symptoms may often change from time to time, due to varied pressure and increased tissue-involvement from the growth. The first aim, Ohly states, is to diagnose the presence of the tumor, and here the ocular symptoms are of utmost importance; having done so it must be the physician's endeavor to locate the site of the lesion. For this, the ocular symptoms are also valuable, especially when the growth affects the optic tract.

St. Paul Medical Journal.

August.

90 Prevention of Maternal Infection. E. B. Cragin, New York.
91 Some Renal Anomalies. L. L. McArthur, Chicago.
92 Metabolism of Fat in Infants. J. P. Sedgewick, Minneapolis.
93 *Necessity of Making a Careful Rectal Examination, with the Aid of Proper Instruments in All Diseases of the Rectum. C. D. Harrington, Minneapolis.
94 Gastric and Duodenal Ulcers. J. W. Andrews, Mankato, Minn.

93. **Examination in Diseases of the Rectum.**—Harrington calls attention in this paper to the fact that until recently little attention has been paid in medical schools to diseases of the rectum or to the proper way to make an examination. He describes in detail his method of examining a patient and states that one of the most difficult lesions to locate is a blind internal fistula. The character of the stools, history of the patient, etc., must not be overlooked. He declares that if physicians would give more attention to this branch of medicine the advertising rectal specialists would be driven out of business.

Therapeutic Gazette, Detroit.

August 15.

95 Treatment of Leukemia by the Roentgen Rays. H. K. Pancoast, Philadelphia.
96 Treatment of Hay Fever. R. Grace, New York.
97 Diagnosis and Treatment of Cerebrospinal Syphilis. G. E. Price, Philadelphia.

98 *Difficulties and Dangers Attending the Use of the Metric System in Prescribing. E. Q. Thornton, Philadelphia.
99 Rational Treatment of Blepharitis. A. Brav, Philadelphia.
100 Status of the Anesthetist. W. H. Long, Louisville, Ky.

98. **The Metric System.**—Thornton discusses the merits and demerits of the metric system and states that if we are going to use it in prescribing we must learn it, and must teach the doses in that system and discard the old. We must think in the metric system, and not attempt to transpose from one system to the other.

West Virginia Medical Journal, Wheeling.

August.

101 Some Achievements of Modern Surgery. F. LeM. Hupp, Wheeling.
102 Ocular Reaction in Tuberculosis. W. L. Weadon, Mt. Carbon.
103 The Other Fellow. F. T. Haught, Morgantown.
104 *Puerperal Fever. J. R. Cook, Fairmont.

104. **Puerperal Fever.**—Cook advises surgical treatment of these cases. If the patient has been ill for three or four days before the surgeon sees her, Cook advises anesthetizing her, curetting out the uterus, and packing it thoroughly, and then opening the cul-de-sac of Douglas and allowing the accumulated fluid to escape from the abdomen. In each case in which he has used this method a large amount of serosanguineous fluid escaped and the patient seemed to be much relieved. He inserts wick drains in the cul-de-sac and leaves them in place for from five to eight days; the uterine packing is removed at the end of twenty-four hours and an antiseptic douche is given night and morning thereafter for as long a time as may be necessary.

Ohio State Medical Journal, Columbus.

August.

105 Fibroid Degeneration of the Appendix. R. T. Morris, New York.
106 *Liquid Carbonic Acid Snow in Dermatology. M L. Heidingsfeld, Cincinnati.
107 What to Prescribe After Static Findings. J. E. Cogan, Cleveland.
108 The Faucial Tonsils. S. H. Large, Cleveland.
109 *Diagnostic Significance of Acute Abdominal Pain. C. D. Kurz, New Philadelphia.
110 Anisometropia. W. E. Bruner, Cleveland.

106. **Carbon Dioxid Snow in Dermatology.**—Heidingsfeld reports the successful application of liquid carbonic acid gas, which can be bought in large iron cylinders at $2.00 a gallon, in various skin diseases, e. g., lupus-vulgaris, warts, epithelioma, nevus, tattoo marks, etc. He describes the technic of collecting the gas, which condenses into snow, in a space formed with chamois leather. It is then molded into any desired form for local application.

109. Abstracted in THE JOURNAL, Sept. 28, 1907, p. 1138.

Pennsylvania Medical Journal, Athens.

August.

111 *The Medicolegal Status of the Roentgen Ray. G. C. Johnston, Pittsburg.
112 *Results in the Treatment of Sarcoma. W. S. Newcomet, Philadelphia.
113 *Conservative Treatment of Sarcoma. W. W. Babcock, Philadelphia.
114 Orbital Abscess Secondary to Nasal Disease. W. Reber, Philadelphia
115 Hemochromatosis with Cirrhosis of the Liver. G. E. Holtzapple, Troy.
116 Physiologic Albuminuria. C. R. Phillips, Harrisburg.
117 The Great Black Plague. E. N. Ritter, Williamsport.
118 Rhinedema with Polyp Formation. W. A. Hitschler, Philadelphia.
119 Treatment of Recent Injuries to the Eye by Penetrating Pieces of Steel. J. B. Corser, Scranton.
120 Diaphoresis in Treatment of Internal Ocular Affections. H. F. Hansell, Philadelphia.
121 Tuberculosis of the Larynx. G. R. S. Corson, Pottsville.
122 Congenital Dacryocystitis. W. Zentmayer, Philadelphia.
123 Turbinotomy and Its Results. G. A. Dillinger, Pittsburg.

111, 112, 113. Abstracted in THE JOURNAL, Nov. 2, 1907, pages 1549, 1550.

Dominion Medical Monthly, Toronto.

August.

124 *Value of the Reflexes in Diagnosis. J. S. R. Russell, London.
125 *Surgical Rights of the People. J. C. Munro, Boston.
126 Immunity to Disease. A. H. Caulfeild, Toronto.
127 Treatment of Diffuse Suppurative Peritonitis Without Drainage. C. F. Moore, Toronto.

124. This article also appears in the *Montreal Medical Journal.*

125. This article appeared in the *Boston Medical and Surgical Journal*, Aug. 20, 1908, and was abstracted in THE JOURNAL, September 5, page 864.

Montreal Medical Journal.

August.

128 A Winter Cruise to the Orient. C. A. Wood, Montreal.
129 Differential Diagnosis Treatment and Some Forms of Mental Disease. J. G. Fitzgerald, Montreal.
130 Value of the Reflexes in Diagnosis. J. S. R. Russell, London, Eng.
131 Use of Lenses Specially Adapted for the Estimation of Bifocal Vision. F. T. Tooke, Montreal.

Journal of Ophthalmology and Oto-Laryngology, Chicago.

August.

132 *Technic of Tonsillectomy and Adenoidectomy F. G. Stubbs, Chicago.

132. **Tonsillectomy and Adenoidectomy.**—Stubbs gives in detail his method of performing these operations. He advises against local anesthesia for children and states that when a general anesthetic is used ether is preferable, as it allows longer intervals in which to work with the mask removed, and is also safer. He directs attention to the fact that children with enlarged lymphatic glands do not stand chloroform well, and says that almost all deaths during this operation are due to chloroform.

The Ophthalmic Record, Chicago.

July.

133 New Trial Case. T. M. Stewart, Cincinnati, Ohio.
134 Exophthalmos of Three Years' Duration Cured by Removal of the Middle Turbinated Body. R. H. Johnston, Baltimore.
135 Etiologic Factors in Interstitial Keratitis. S. D. Risley, Philadelphia.
136 Case of Congenital Aniridia: also one of Kerato-Comus. G. Robinson, Philadelphia.

August.

137 Complete Peripheral Capsulotomy. F. Valk, New York.
138 Protective Influence Exerted by the Iris in Perforated Wounds of the Cornea. F. T. Tooke, Montreal, Canada.
139 *The Value of Morphin Derivatives in Ocular Therapeutics. L. W. Fox, Philadelphia.
140 Glioma of the Retina, Enucleation and Recovery. G. L. Schneider, Elgin, Ill.
141 Operation for Removal of Style in the Nasal Duct. S. B. Muncaster, Washington, D. C.
142 Two Anomalous Winking Cases. J. N. Rhoads, Philadelphia.

139. This article also appeared in the *Virginia Medical Semi-Monthly*, June 26, 1908.

Buffalo Medical Journal.

August.

143 Originality and Priority in Modern Cystoscopes. B. Lewis, St. Louis.
144 Obstetric Surgery. D. G. Wilcox, Buffalo.
145 Chronic Inflammation of the Vesiculæ Seminales. J. A. MacLeod, Buffalo.

Iowa Medical Journal, Des Moines.

August.

146 Duties and Responsibilities of a State Society. W. L. Bierring, Iowa City.
147 Ocular Tuberculin Test of Calmette. N. Bannister, Ottumwa.
148 Medical Aspect of the Duodenum. E. Grimes, Des Moines.
149 Surgical Aspects of the Duodenum. W. Jepson, Sioux City.
S. D.
150 Tuberculous Meningitis. G. S. Browning, Sioux City.

Colorado Medicine, Denver.

August.

151 Cleft Palate. T. E. Carmody, Denver.
152 Ocular Tuberculosis. E. Jackson, Denver.
153 Extrauterine Pregnancy. F. N. Cochems, Salida.
154 Infection of the Fallopian Tubes. J. W. Rambo, Portland, Colo.
155 Sudden Death During Pregnancy or Puerperium. C. H. McClanahan, Colorado Springs.
156 Case of Fracture at the Base of the Skull with Prolonged Unconsciousness—Recovery. W. J. LeRossignol, Rifle.
157 Laryngeal Tuberculosis. E. W. Fox, Trinidad.

Albany Medical Annals, Albany.

August.

158 The Inherent Spirit of Medicine. A. S. M. Chisholm, Bennington, Vt.
159 Chronic Alcoholism. E. M. Somers, Ogdensburg, N. Y.
160 Importance of Making the Patient Cough During Auscultation of the Lungs. A. T. Laird, Albany, N. Y.
161 The Guest, or Personal Experience of a Patient in a Hospital for Insane. Told by Herself.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London.

August 22.

1 *Granular Kidney. W. B. Warrington.
2 Gigantic Retroperitoneal Tumor, Intimately Connected with the Kidney, which Simulated Ascites from Tuberculous Peritonitis. C. A. Morton.
3 Alleged Discovery of Syphilis in Prehistoric Egyptians. G. E. Smith.
4 Digest of Eighty-six Cases of Epidemic Cerebrospinal Meningitis in Motherwell in 1907. E. Watt.
5 Thirty-five Consecutive Cases of Extrauterine Pregnancy Dealt With by Abdominal Section Without a Death. J. Oliver.
6 Generalized Edema of the Fetus. W. W. King.
7 Case of Double Abdominal Hydrocele. O. Richards.
8 Case of Congenital Hypertrophic Stenosis of the Pylorus Treated Medically. N. B. Clowes.

1. **Granular Kidney.**—Warrington states that the cardinal symptoms on which a diagnosis of granular kidney is based are: 1, cardiovascular changes; 2, eye changes; 3, manifestations of chronic or acute renal toxemia, and 4, the condition of the urine. He discusses these at some length and asserts that the cardiovascular changes are of primary importance. Ophthalmoscopic examination will often make a diagnosis possible in obscure cases. A few points must be remembered: 1. None of the appearances, except the arterial changes, are absolutely distinctive of renal disease, but in rare cases may be exactly simulated by, say, the changes in cerebral tumor. 2. The most characteristic feature is the appearance of small glistening, woolly-whitish patches often arranged in a striate fashion round the macular region. These are degenerative in nature, are permanent, and may require careful searching for with a dilated pupil, and the direct method. 3. Other changes are larger white patches, irregularly distributed on either side of the disc; probably exudations. Hemorrhages and papillitis are not uncommon. All these may disappear. 4. They may occur at any age. 5. The prognostic significance of the degenerative patches is grave. So protean are the manifestations of granular kidney, he declares, that the examination of the eye may be the one thing which will make a puzzling case clear, and, as in the optic neuritis of cerebral disease, vision may be not at all, or only slightly affected. The more chronic states of toxemia may lead to errors in diagnosis. The anemia, wasting and cachexia of advanced granular kidney must be borne in mind.

From the point of treatment there are several groups of cases: 1, the compensated kidney in which the excretion of urinary products is not greatly interfered with; 2, the acute exacerbations in which the treatment resembles that of acute nephritis; 3, the cases of cardiac failure; 4, the more chronic symptoms of renal toxemia; 5, the hopeless cases in which the desires and tastes of the patient should be catered to so far as possible. In the compensated cases the treatment should be chiefly prophylactic. Alcohol is undesirable; condiments are likely to be harmful, and the heart is especially sensitive to tea and coffee stimulation. According to von Noorden, quoted by Warrington, the average daily nitrogen should not fall below 12 grams, which requires about 85 grams of proteid. Physical treatment is important and a warm, dry climate is beneficial. Cardiac symptoms must be treated as they arise. For high tension Warrington advises baths and free action of the bowels. For more urgent symptoms sodium nitrite and nitroglycerin are useful. Cardiac failure must be treated in the usual way. When there are signs of renal toxemia, elimination by the bowels and skin must be promoted. Warm baths or vapor baths frequently relieve toxemia and the intense and distressing headache. Hot rectal injections of saline solution are recommended by some observers, while others advise administration of digitalis. Warrington thinks it advisable to give morphin in these cases; he considers it invaluable for relief of the painful, restless nights, especially when there is cardiac dyspnea. Chloral, he says, may be given by rectum. Occasionally lumbar puncture is successful in cutting short the convulsions.

British Medical Journal, London.

August 22.

9 Are Yeast Extracts Justifiable as Substitutes for Extract of Meat? A. Gamgee.
10 Clinical Experiences with Spinal Analgesia. A. E. Barker.
11 Some Lessons from Ancient Fractures. F. W. Jones.
12 Hyperpyrexia. J. Smith.
13 Antral Disease in Relation to Special and General Surgery. H. Tilley and A. S. Underwood.
14 Teething and Its Alleged Troubles. L. Guthrie, H. A. T. Fairbank and J. G. Turner.
15 Acute Pyorrhea Alveolaris Treated by a Specific Vaccine. K. W. Goadby.
16 *Mortality in Dusty Trades in Sheffield. H. Scurfield.
17 Etiology and Prevention of Pneumonokoniosis. T. Oliver.
18 Pathology of Grinders' Phthisis. A. E. Barnes.
19 Dust Removal in the Grinding Trades. C. Johnston and S. R. Bennett.
20 Notification of Industrial Diseases. A. Scott.
21 Industrial Dermatitis. F. Shufflebotham.
22 Tar and Asphalt Workers' Epithelioma and Chimney-Sweeps' Cancer. T. Oliver.
23 An International Committee on Industrial Disease. L. Carozzi.
24 Physiology of Purin Metabolism. J. B. Leathes, C. Watson, E. I. Spriggs, Sir L. Brunton, T. H. Milroy and I. W. Hall.
25 Influence of Oxygen Inhalations on Athletes. L. Hill.

16. **Mortality in Dusty Trades.**—Scurfield states that the dusty trades of Sheffield produce their chief effect by increasing the fatality of tuberculosis and other diseases of the respiratory tract. About 120 males die every year in Sheffield from tuberculosis, who would not die if the conditions for work in Sheffield were as good as in the rest of the country. The higher death rate is chiefly among males. In Sheffield the death rate of grinders from phthisis is more than six times and the death rate from other respiratory diseases nearly three times that of the average male; while the death rate of cutlers from phthisis is nearly three times and from other respiratory diseases nearly four times that of the average male. Scurfield calls attention to the difference in the conditions in Sheffield and in Solingen, Germany, where similar trades are carried on.

Medical Press and Circular, London.

August 19.

26 Dementia Præcox. J. Turner.
27 Diabetic Regimen. A. Jaquet.
28 Bacterial Aspects of Cerebrospinal Fever. J. A. Hislop.
29 Physical Deterioration in Children. J. J. Cox.
30 Oral Use of Serum. D. M. Paton.

Clinical Journal, London.

August 12.

31 Case of Homonymous Hemianopia with Unusual Sensory Symptoms. H. H. Tooth.

August 19.

32 Puerperal Fever. V. Bonney.
33 Surgical Treatment of Imperfectly Descended Testicle. E. M. Corner.

Journal of Tropical Medicine and Hygiene, London.

August 1.

34 Review of the Position of Gland Palpation in Diagnosis of Human Trypanosomiasis. J. L. Todd.
35 *Bacilli Carriers and Their Part in the Transmission of Infectious Diseases. F. Vay.

35. **Bacilli Carriers.**—Vay defines a bacillus carrier and the meaning of "convalescence." He then considers residual microbes, immunizing factors, and the carrying of diphtheria, typhoid, plague and cholera, the duration of convalescence and the special measures for each disease, and formulates the following conclusions:

1. The importance of bacteria carriers is not identical in all infectious diseases, their part should be examined for each disease separately.
2. Concerning plague, further investigations should be made.
3. Epidemiologic facts render it likely that the importance of bacilli carriers is not very great in cholera; theoretical speculations lead to the same result.
4. In practice it is preferable to direct attention to careful clinical medical examination and supervision.

Annals of Tropical Medicine and Parasitology, London.

July.

36 *A Peculiar Intralobular Cirrhosis of the Liver Produced by the Protozoal Parasite of Kala-Azar. L. Rogers.
37 *What is "*Schistosomum mansoni*" Sambon 1907? A. Looss.
38 *Prevention of Dengue Fever. E. H. Ross.
39 Life History of *Trypanosoma lewisi*. J. E. Salvin-Moore, A. Breinl and E. Hindle.
40 Effects of Therapeutic Agents on Trypanosomes in Respect to (a) Acquired Resistance of the Parasites to the Drug, and (b) Changes in Virulence of the Strains After Escape from the Drug. B. Moore, M. Nierenstein and J. L. Todd.
41 *Observations on the Acidity and Alkalinity of the Blood in Trypanosome Infections. M. Nierenstein.
42 *Contributions to the Morphology and Life History of *Piroplasma canis*. A. Breinl and E. Hindle.

43 Comparative Chemotherapeutical Study of Atoxyl and Trypanocides. M. Nierenstein.
44 Three New Species of *Culex* Collected During the Antimalarial Campaign in Mauritius in 1908. D. E. de Charmoy.

36. **Kala-Azar.**—Rogers summarizes his remarks as follows:

1. The most chronic cases of kala-azar not infrequently terminate their course with ascites due to cirrhosis of the liver.
2. The cirrhosis is of a peculiar intralobular type of uniform distribution, the organ having a smooth surface.
3. It is due to the protozoal parasite of kala-azar, which may be found in the liver and other organs after death.
4. This form of cirrhosis of the liver is much commoner in Lower Bengal than a true malarial cirrhosis, with which it has probably hitherto been confused. It is, however, much less common than atrophic cirrhosis due to unknown causes.

37. **Schistosomum Mansoni.**—Looss examines in detail Sambon's discovery of a new species of blood fluke, *Schistosomum mansoni*, which Sambon stated had been hitherto confounded with *Sch. hæmatobium*. He summarizes his argument by stating that of the evidence brought forward by Dr. Sambon in order to justify the creation of *Sch. mansoni*, 1, the zoologic proof is absolutely insufficient; 2, the anatomo-pathologic proof does not stand any serious test, and 3, the geographical proof is based on a peculiarly one-sided interpretation of the literature. In all the evidence there is not the slightest detail which would really point to the existence of a distinct species in the West Indies and certain parts of Africa. It would be unwise on his part, Looss says, to go so far as to contend that such a species, or perhaps even several species, can not, altogether, exist. This is quite possible from the zoologic point of view; but, zoologically, there is no possible doubt, either that this species, or these species, must produce the same two shapes of eggs as does the *Sch. hæmatobium*, or else our present information is wholly incorrect. If, therefore, Dr. Sambon wishes to maintain that there is an independent *Sch. mansoni* in the countries above mentioned, the entire proof of its existence still remains to be given.

38. **Dengue.**—Ross points to the fact that with the extermination of mosquitoes in Port Said, not only has malaria disappeared, but dengue, which was formerly very prevalent, has disappeared also; and he thinks that the extermination of the domestic mosquito means the prevention of dengue.

41. **The Blood in Trypanosomiasis.**—Nierenstein reports his observations on the acidity and alkalinity of the blood in trypanosome infections, and concludes that: 1. It is evident, that in experimental trypanosomiasis infection (*T. brucei* and *T. equiperdum*) the acidity of the blood increases. 2. The increase of the acidity is probably due to the production of amido acids through, or by the trypanosomes, i. e., the acids might be either secreted by the parasites or produced by the action of the parasites on the proteins of the blood serum. In the latter case the amido acids would be broken up through hydrolysis from the proteins into simpler polipeptids. 3. It is possible that the increase of acidity might be of assistance in the diagnosis of a typical case of trypanosomiasis, in which the parasites have disappeared for some length of time from the blood circulation. 4. These experiments suggest that in trypanosome treatment effort should be made to neutralize the increased acidity of the blood, as this might prove of additional assistance in making the blood a less favorable medium for their development.

42. **Piroplasma Canis.**—Breinl and Hindle report observations which seem to point to the fact that the biflagellate forms of *Piroplasma canis* represent a very transient stage in its life history. This article is elaborately illustrated in colors.

Parasitology, London.

June.

45 Liver Abscess of Amebic Origin in a Monkey. A. Castellani.
46 Larval and Pupal Stages of *Anopheles maculipennis* Meigen. A. D. Imms.
47 Mode of Multiplication of *Piroplasma bovis* and *P. pitheci* in the Circulating Blood Compared with that of *P. canis*, with Notes on Other Species of Piroplasma. G. H. F. Nuttall and G. S. Graham-Smith.
48 Behavior of Spirochetes in *Acanthia lectularia*. G. H. F. Nuttall.
49 Structure and Biology of *Hæmaphysalis punctata*. Canestrini and Fanzago. G. H. F. Nuttall, W. F. Cooper and L. E. Robinson.
50 Hirudinea as Human Parasites in Palestine. E. W. G. Masterman.
51 A Gnathobdellid Leech (*Limnatis* sp?) from Angola. W. A. Harding.
52 *Cystidicola farionis*, Fischer. A Threadworm Parasitic in the Swim-Bladder of a Trout. A. E. Shipley.
53 Anatomy of *Cystidicola farionis*. R. T. Leiper.

Dublin Journal of Medical Science, Dublin.

August.

54 Oxaluria and Phosphaturia. W. G. Smith.
55 Ocular Reaction in Tuberculosis. R. Holmes.
56 Protozoal Diseases in Man. A. F. G. Kerr.
57 Clinical Reports of the Rotunda Hospital. E. H. Tweedy.

Journal of Laryngology, Rhinology and Otology, London.

August.

58 Chronic Inflammatory Edema of the Submucous Tissues of the Nose. J. S. Fraser.
59 Laryngostomy and Tracheolaryngostomy in the Cure of Severe Chronic Stenosis of the Larynx or Trachea, especially when Cicatricial. Sargnon and Barlatier.

Annales de l'Institut Pasteur, Paris.

July 25, XXII, No. 7, pp. 561-623.

60 Report of Commission sent to Senegal to Study Trypanosomiasis. A. Thiroux, R. Wurtz and L. Teppaz.
61 Bactericidal Action of Extract of Leucocytes of Rabbits and Guinea-pigs. (Action bactéricide de l'extrait leucocytaire des lapins et des cobayes.) C. V. Korschun.
62 Opsonins and Antiphagins in Pneumococcus Infection. N. Tchistovitch and V. Yourevitch.
63 Specific Sensitizer in Malta Fever Serum. (Sensibilisatrice spécifique dans les sérums des animaux traités par le "M. Melitensis" et dans le sérum des malades atteints de fièvre méditerranéenne.) A. Sicre.

Annales de Médecine et Chirurgie Infantiles, Paris.

August 1, XII, No. 15, pp. 505-540.

64 Two Cases of Congenital Paroxysmal Cyanosis with Autopsy. G. Alvarez.

Presse Médicale, Paris.

August 12, XVI, No. 65, pp. 513-520.

65 •Pericarditis in Course of Poisoning from Mercury Bichlorid. A. Petit and J. Milhit.
66 •Mineral Waters in Treatment of Syphilis. (Eaux minéraies dans le traitement de la syphilis.) C. de la Carrière.
67 Probable Existence of Nerves to Excite the Glands for the Renal Secretion. (Existence probable de nerfs excito-glandulaires pour la sécrétion rénale.) H. Delaunay.

August 15, No. 66, pp. 521-528.

68 Deformity of Hip with Lumbar Scoliosis. (Déformation des hanches dans la scoliose lombaire.) P. Desfosses.
69 Ethereal Sulphates in Urine in Pathologic Conditions. (Les sulfo-éthers urinaires.) H. Labbé and G. Vitry.
70 Importance of Graphic Registration of Neuromuscular Reactions for Industrial Accident Insurance. (L'électro-diagnostic graphique.) J. Larat.

65. **Pericarditis from Bichlorid Poisoning.**—A young woman had a transient but severe pericarditis, without effusion or fever, after an attempt to commit suicide by ingestion of 1.3 gm. (about 20 grains) of mercury bichlorid. The pericarditis became evident about the tenth day and persisted for three weeks.

66. **Mineral Waters in Treatment of Syphilis.**—Carrière attributes the beneficial action of sulphur waters in syphilis to the combination of the sulphur with the insoluble mercury albuminate resulting from mercurial treatment, transforming it into a soluble mercuric sulphate. The sulphur waters act on the mercury which remains stored up and inert in the organs, and renders it soluble, thus restoring its therapeutic power even a long time after its ingestion. A course of sulphur waters, he adds, also prevents or cures symptoms of mercury poisoning, as the waters induce rapid elimination of the mercury. Syphilitics taking sulphur water can bear mercury in doses two or three times the average, even in case of very susceptible individuals. The patient is kept in a mercurial atmosphere, he says, which might be dangerous if it were not for the safety valve formed by the sulphur. Even the average doses are better utilized, and thus better results are obtained. He advises an occasional course of sulphur water for every syphilitic, even when he is apparently well. During the first stage of syphilis these courses should be taken preferably during the periods of suspension of mercurial treatment. Later it is a good precaution to combine the waters with the specific medication.

Revue de Chirurgie, Paris.

August 10, XXVIII, No. 8, pp. 213-339.

71 Clinical and Histologic Study of Chondroma and Osteochondroma. (Tumeurs ostéochondromateuses complexes.) V. Cornil and P. Coudray.
72 Tarsectomy Retaining the Calcaneum. M. Vallas and L. Desgouttes.
73 Advantages of and Various Technics for Utilization of Uterus in Plastic Operations for Genital Prolapse. J. Martin.

Semaine Médicale, Paris.

August 19, XXVIII, No. 34, pp. 397-408.

74 *Isotonic Solution of Quinin for Intravenous Injections. (L'isotonie des solutions de quinine pour injections intraveineuses.) P. Chapelle.

74. **Isotonic Solution of Quinin for Intravenous Injections.**—Chapelle reviews the literature on this subject and shows how a typographic error in the formula in an Italian journal has been reproduced and copied from one journal to another and even got into an original article by Baccelli, the originator of the method, in the *Berliner klinische Wochenschrift* in 1890. The concentration given would prove dangerous for intravenous injection. Chapelle concludes from his research that each liter of an isotonic solution of quinin hydrochlorid must contain about 7.5 gm. of this salt (that is, a 7.5 per cent. solution). If there is less than 7.5 gm. of the hydrochlorid to the liter, each lacking gram of the quinin salt must be replaced by 0.125 gm. of sodium chlorid.

Archiv für klinische Chirurgie, Berlin.

LXXXVIII, No. 4, pp. 859-1087. Last indexed August 22, p. 715.

75 *Plastic Operations on Bones. (Osteoplastik.) A. Barth.
76 Case of Hematolymphangioma. J. Novak.
77 *Aseptic Operations on Intestines. (Aseptische Darmoperationen.) L. Moszkowicz.
78 Appendicitis Following Trauma. F. Brüning.
79 *Free Bone Plastic Operations and Attempts at Transplantation of Joints and Stiffening Joints. (Verwendung der freien Knochenplastik nebst Versuchen über Gelenkversteifung und Gelenktransplantation.) E. Lexer.
80 *Operative Treatment of Fractures and Their Consequences. (Operative Behandlung der Knochenbrüche und ihrer Folgen.) S. Peltesohn. Commenced in No. 3.
81 *Local Anesthesia of Limb by Venous Transfusion After Expulsion of Blood. (Neuer Weg Localanästhesie an den Gliedmaassen zu erzeugen.) A. Bier.
82 Experimental Research on Changes in Nissl's Granule with Spinal Anesthesia. (Veränderungen der Nissl'schen Granula bei der Lumbalanästhesie.) E. Wossidlo.
83 Operative Treatment of Chronic Abscess of the Lung. Perthes.
84 Tuberculous Tumor of Sigmoid Causing Stricture. J. Boese.

75. **Plastic Operations on the Bones.**—Barth reports favorable results from implantation of dead bone substance when certain conditions are observed. Among the cases are some in which the bone marrow was still capable of ossification, but lacked the necessary lime for callus formation. The local supply of lime-containing material, bone charcoal, provided the needed substance and the defect soon filled up with new bone tissue. Autoplastic operations with pieces of bone with attached periosteum, to bridge gaps in the long bones, is the sovereign and only certain method to date. Axhausen's research has supplied a basis for homoplastics, he says, and bright day has dawned for osteoplastic surgery.

77. **Aseptic Operations on the Intestine.**—Moszkowicz has been extensively applying Rostowzew's technic for aseptic operations on the intestines. He has modified it somewhat, and here gives an illustrated description of the instruments and technic, claiming that this method realizes the ideal of aseptic operations on the intestines.

79. **Transplantation of Joints and Other Plastic Operations on the Bones.**—Lexer's experience in transplanting entire joints has attracted much attention. He says that fresh, still warm, human bones give the best results in transplantation. He seldom takes the bones from the patients, as amputations on account of dry senile gangrene have hitherto supplied him with ample material. He has never had a mishap or failure in transplanting these fresh human bones, with their attached periosteum, even in defects of from 20 to 30 cm. in length. In four cases he transplanted part of the shaft and joint with good results, and in two cases an entire joint. In the two latter cases the entire knee was resected and a new knee implanted. Each patient can now use the knee a little, after seven and four months respectively, and in one case the knee can be bent passively to an angle of 45 degrees. There is no pain in standing or walking in either case. He adds that if one is economical with the amputation material, a limb otherwise thrown away will supply material for several transplantation cases.

80. **Operative Treatment of Fractures and Their Consequences.**—Peltesohn concludes his long article with an illustrated summary of 60 cases in which various technics were applied in Körte's service at Berlin.

81. **The Venous Transfusion Method of Local Anesthesia.**—THE JOURNAL, June 6, page 1914, referred to Bier's first communication on his method of local anesthesia by venous transfusion. The details are given here, confirming the possibility of obtaining complete anesthesia by local technic even for such operations as resection of joints, tendon transplantation, etc. The blood is carefully expelled from the limb by bandaging from the periphery upward. Then, above the field of operation, constriction is applied with a soft, narrow elastic band wound many times around the limb to cover a broad segment. This method of constriction is not painful or annoying, while it keeps the blood effectually out of the limb. A second similar elastic bandage is applied below the operating area. A subcutaneous vein between the bandages is opened, as for intravenous infusion, and the weak solution of the anesthetic is injected toward the valves of the vein. Hitherto he has used for adults from 60 to 80 c.c., for resection of the knee, and from 40 to 50 c.c., for the elbow, of a 0.5 per cent. solution of novocain, or about twice the amount of a 0.25 per cent. solution. The anesthesia follows in from two to fifteen minutes. In a typical case described, the elbow was resected in a very sensitive patient, without pain, and the ankylosed fingers were energetically exercised before sensation returned, seven minutes after removal of the constriction. The anesthetic must be dissolved in physiologic salt solution: it rapidly penetrates the walls of the vein and acts on the nerve terminals as well as on the nerve trunk. The expulsion of the blood allows a large proportion of the drug to be bound so that it is only gradually yielded up to the circulation. A large part of the solution injected also escapes outward through the surgical wound, before the constriction is finally removed. To promote this, after the operation is finished, but before the suturing is commenced, Bier removes the peripheral bandage and loosens the central bandage, very slowly, until the arteries open but the veins are still compressed—that is, until the limb begins to grow pink and the surgical wound bleeds freely. By this means most of the novocain solution left in the vessels is washed out with the blood. The central bandage is tightened again until the arteries are compressed, and the wound is then sutured before the anesthesia subsides. When he uses the largest amounts of the anesthetic he leaves the cannula in the vein, and just before finally removing the constricting band he flushes the entire vascular system of the operating area with physiologic salt solution, injected through the cannula. It runs out again through the surgical wound. He remarks in conclusion that this method of anesthesia shows how a fluid injected into a vein in a tied-off segment of a limb is brought into intimate contact with all its tissues. He adds that this technic might possibly be utilized for other purposes; it seems to be the only way in which the Müller and Peiser antiferment could be brought into close contact with all the tissues for treatment of diffuse phlegmons.

Berliner klinische Wochenschrift.

August 17, XLV, No. 33, pp. 1517-1556.

85 Relations between Bacilli of Human and Bovine Tuberculosis. (Beziehungen der Bacillen der menschlichen Tuberkulose zu denen der Perlsucht des Rindes.) K. Steffenhagen.
86 Further Research on History and Treatment of Tuberculosis. (Forschungen zur Behandlung der Tuberkulose.) E. Klebs.
87 *Resection of Elbow with Retention of Function. (Ellbogenresektionen mit Erhaltung der Beweglichkeit.) V. Schmieden.
88 Abducent Paralysis after Spinal Anesthesia. (Abducenslähmung nach Lumbalanästhesie mit Tropacocain.) C. Gontermann.
89 *Paraffin Prothesis. V. S. Stein.
90 Toxin and Anaphylactic Substance of Eel Serum. (Aalserum.) R. Doerr and H. Raubitschek.
91 Action of Peroxids on Digestive Organs. (Wirkung von Superoxyden auf die Verdauungsorgane.) Togami.
92 *Etiology and Treatment of Singers' Nodules. (Sängerknötchen.) E. Barth.
93 Principles of Modern Treatment of Cripples. (Moderne Krüppelfursorge.) Biesalski.

87. **Resection of the Elbow with Retention of Movements.**—Schmieden reports from Bier's clinic at Berlin 11 cases in which the elbow was resected by a technic of which he gives an illustrated description. In 6 cases the operation left a usable joint even for hard manual labor; in 4 cases the move-

ments were only slightly restricted and the results were bad in one case. The main feature of the technic is the interposition of a pedunculated muscle flap from the triceps between the raw stumps of the joint cut in the physiologic curves.

89. **Paraffin Prosthesis.**—Stein's syringe for injecting cold paraffin under pressure has won wide approval. He here gives a number of technical points which facilitate the operation. There should be no admixture of vaselin with the paraffin, and the melting point should not be above 50 C. (122 F.). He says that it is important to determine the melting point for each specimen. He does this by what he calls the "disc method." A piece of thin, soft iron wire, such as florists use, is passed around a steel rod, 6.5 mm. in diameter, and the ends twisted to form a loop with handle. This little wire loop or ring is dipped in the melted paraffin. It fills with a thin film of paraffin which rapidly hardens. This disc of film is then suspended in water which is then heated and the temperature of the water noted at the point when the disc of paraffin begins to melt around the edges. This technic gives constantly reliable findings.

92. **Treatment of Singers' Nodules.**—Barth gives an illustrated description of the mechanism of the movements of the vocal cords and shows the causes for the formation of singers' nodules. They are due to a false method of using the throat. As the tone rises the thyroid cartilage is drawn upward, with this false technic. The correct technic causes the thyroid cartilage to be drawn down more and more, the higher the tone, and no tendency to the formation of nodules is observed. They disappear as the parts are rested, just as callous patches elsewhere retrogress. Treatment can be permanently effectual only when the singer or lecturer learns to use his throat mechanism correctly.

Deutsches Archiv für klinische Medizin, Leipsic.

July, XCIII, Nos. 5-6, pp. 459-614. Last indexed, August 1, p. 446.

94 *Three Cases of Adams-Stokes' Symptom Complex and Disturbance in Conduction of Impulse. A. Heineke, A. Müller and H. v. Hösslin.
95 *Retrogression of Adams-Stokes' Symptom-Complex. (Rückbildung des Adams-Stokes'chen Symptomenkomplexes.) D. Gerhardt.
96 Graphic Registration of Tympanitic and Non-tympanitic Percussion Resonance. (Graphische Studien über den tympanitischen und den nichttympanitischen Perkussionsschall.) R. May and L. Lindemann.
97 Fermentative Power of Polyps Secretion in Case of Extensive Polyposis of Colon and Rectum, and Observation of Action of Purgative. Esser.
98 *Measurement of Systolic and Diastolic Blood Pressure. (Messung des systolischen und diastolischen Blutdruckes.) M. John.
99 Behavior of Pepsin and Lab in Fundus and Pylorus of Human Stomach, and Relations Between Action of Pepsin and Concentration of the Acid. (Verhalten von Pepsin und Lab im Fundus und Pylorus des menschlichen Magens, nebst einigen Bemerkungen über die Beziehungen von Pepsinwirkung und Säurekonzentration.) R. Landerer.
100 Formation of Inclusions in Polychromatic and Basophilic Granulated Red Corpuscles. (Schleifenbildung in polychromatischen und in basophilgekörnten roten Blutkörperchen.) E. Sluka.
101 Research on Hyperemia with Nephritis. M. Halpern.
102 Case of Syringomyelia with Bulbar Symptoms. (Syringobulbie mit Sektionsbefund.) L. Enders.

94. **Adams-Stokes' Syndrome.**—This communication from Müller's clinic at Munich reports three cases of the Adams-Stokes' syndrome and two of disturbances in conductibility without the above syndrome. In the first case the bundle of His showed pathologic changes corresponding to the partial disturbance in conduction. In the second case there was complete obliteration of this bundle, although the ventricle frequently contracted in connection with the auricle. This justifies the assumption that, under certain circumstances and long duration of the affection, other routes for the conduction may be developed. The third case was distinguished by the absolute arrhythmia of the pulse; it demonstrates that the Adams-Stokes' syndrome may be the result of irritation of or pathologic processes in the vagus nerve. One pulse tracing of the first case showed an interpolated auricular extrasystole.

95. **Retrogression of the Adams-Stokes' Syndrome.**—Gerhardt reports two cases in which the typical syndrome completely retrogressed while under observation. The number of blocked systoles grew less and less until finally the beat was normal. Both patients were elderly and the disturbances in the bundle of His were evidently of arteriosclerotic origin. One patient was a woman of 65, and the attacks suggesting heart block recurred at intervals. Another patient was a man of 25, previously healthy, recovering from acute articular rheumatism. The attendant who waited on him had recently recovered from typhoid, and he contracted the disease and succumbed to hemorrhage the fifth week. During the first week of the acute rheumatism severe symptoms of heart block recurred at intervals, finally yielding to normal heart action. Autopsy revealed considerable anatomic changes in the bundle of His which sooner or later would probably have induced renewed symptoms in the conduction. The case shows how inflammation may develop in the bundle of His in the course of an acute infectious disease and may entail severe but transient attacks of Adams-Stokes' paroxysms, the disturbance in conduction gradually subsiding in the course of a few weeks until the heart action may be apparently normal, notwithstanding the persistence of lesions in the bundle of His.

98. **Study of the Blood Pressure.**—John continues the work in this line which his chief, Volhard, has been conducting for many years. He has recorded the blood pressure before and after various therapeutic measures, such as electric baths, or before and after use of alcohol and nicotin. Variations in the blood pressure seem to be most pronounced with arteriosclerosis. He tabulates his findings under various headings, and remarks that it is interesting to note how failing compensation can be restored approximately to normal by rest in bed and appropriate diet alone, dyspnea and edema disappearing without a drop of digitalis merely by limiting the intake of fluids. All this can be instructively traced by repeated control of the pulse pressure. The dyspnea of patients with contracted kidney can be remarkably influenced by restricting the patient for six days to 200 c.c. of milk four times a day. A sudden drop in the pulse pressure indicates digitalis or some similar remedy at once. He noticed that certain patients, convalescing from an infectious disease, on getting out of bed and standing erect showed a rise in the pulse rate from 72 to 110 or 120, or even to 144 or more. The pulse became small and the patients felt dizzy. The pulse rate declined again when they returned to bed. Other patients not suffering from an acute infection never showed an increase of more than 24 beats and this dropped by 12 or 16 beats in about five minutes. The systolic pressure showed a slight drop while the diastolic pressure increased, but only by 5, 8 or 10 cm. water. In the convalescents from acute infections the systolic pressure dropped by several centimeters while the diastolic increased by 10 or 20 cm. or more. In none of these patients of either group was there anything to indicate cardiovascular disease. He emphasizes that these findings demonstrating weakness on the part of the vascular system are important for determining when a patient can be allowed to get up after an infectious disease. It is especially important in general practice, when the patient can not be seen every day. He advises having the patient get up and stand while the pulse is noted for five or ten minutes. If the rate rises from 70 or 80 to 110 or 120, it is better to leave the patient in bed for a while longer until these pulse findings approximate normal, that is, until the pulse does not run above 100 in ten minutes, standing.

Deutsche medizinische Wochenschrift, Berlin.

August 13, XXXIV, No. 33, pp. 1417-1456.

103 *Obstetrics, Old and New. (Alte und neue Geburtshilfe.) H. Fritsch.
104 Trypanosome Infection and Complement Binding. C. Schilling and v. Hoesslin.
105 Experimental Study of Pathogenesis of Local Tetanus. K. Pochhammer.
106 Structure and Genesis of Symptomatic Xanthoma. F. Pinkus and L. Pick.
107 Primary, Fatal Anthrax of Tonsil. (Milzbrand der Tonsillen.) Z. Noury, Pascha and Haidar, Bey.
108 Computation of Conception, Menstruation and Duration of Pregnancy. (Schwangerschaftsberechung.) H. Bab.

103. **Obstetrics, Old and New.**—Fritsch here reviews the trend of obstetrics in his forty years of professional practice. He remarks that the main progress in this long period, in all specialties, is traceable to the surgical tendency. Wherever great advances and good results have been achieved it has always been by the specialty's becoming surgical. Obstet-

rieians would not keep up with the procession if they shrank from taking part in this mode of progress. He even asserts that it seems as if the more surgical a medical specialty has become, the farther it has progressed. This is so in obstetrics and gynecology, as also in internal medicine, in otology and in all the other specialties. He urges that in every difficult obstetric case the patient should be sent to a hospital, remarking that if the law required that every woman should be confined in a lying-in institution the lives of hundreds of women and children would be saved every year.

Fortschritte der Medizin, Leipsic.

July 30, XXVI, No. 21, pp. 641-672.

109 *Beginning of Training for Mental and Physical Health During First Year of Life. (Anfänge einer Erziehung zu geistiger und körperlicher Gesundheit während des ersten Lebensjahres.) Eschle.

109. **Training of the Infant.**—Eschle declares that the instinctive consciousness that certain actions have certain consequences develops extraordinarily early in the infant. He is convinced that the foundations for moral and physical health should be begun to be laid when the infant is three months old. During the first three months it should be accustomed to order and punctuality. In the fourth month, if the infant learns that it does not gain anything but merely darkness by undue crying, its tendency to become a tyrant in the house is nipped in the bud. The crying of a healthy child may be a means of useful exercise, and need not be necessarily suppressed, but if the crying becomes a bad habit it may have evil consequences not only for the physical development but also on the future character. The infant has no fear of darkness, but when it finds that motiveless and too long-continued crying merely causes the room to be darkened, it soon wearies of crying and the little being struggling for existence (and for the mastery of the house) learns to control its desire to cry and to tyrannize.

Münchener medizinische Wochenschrift.

August 11, LV, No. 32, pp. 1673-1720.

110 *Puncture of the Corpus Callosum in Hydrocephalus, Epilepsy and with Tumors. (Balkenstich bei Hydrozephalien, Tumoren und bei Epilepsie.) Anton and v. Bramann.
111 *Office Tests of Heart Functioning. (Wie prüfen wir in der Sprechstunde die Funktion des Herzens.) Waldvogel.
112 Origin of Pertussis. (Untersuchungen zur Entstehung des Keuchhustens.) C. Fraenkel.
113 Toxic Non-Bacterial Cutaneous Tuberculosis. (Experimentelle Untersuchungen über "tuberkulöse" Veränderungen an der Haut ohne Mitwirkung von Tuberkelbazillen (toxische Tuberkulosen) und die Bedingungen ihres Entstehens.) K. Zieler.
114 Much's Granular Form of Tuberculosis Virus. M. Wirths.
115 Specificity of Serum Diagnosis of Syphilis. (Spezifizität der Komplementbindungsmethode bei der Syphilis.) Jochmann and Töpfer.
116 *Treatment of Scarlet Fever. (Behandlung scharlachkranker Kinder.) K. Oppenheimer.
117 Treatment of Summer Diarrhea in Children. (Behandlung der Sommerdurchfälle der Kinder.) M. Goetz.
118 Radical Operation for Inguinal Hernia. (Radikaloperation der Leistenbrüche—Faszien-Knopfnähte.) Hackenbruch.
119 *Treatment of Hydrocele. H. Mohr.
120 *Extraction of Needles. (Nadelextraktion.) C. Haeberlin.
121 Beginning of Ocular Tuberculin Cytoreaction. (Ophthalmozytoreaktion.) J. Sabrazès and C. Lafon.

110. **Therapeutic Puncture of the Corpus Callosum.**—Anton and Bramann report four cases in which improvement followed puncture of the corpus callosum, made through the longitudinal fissure from near the vertex. The opening is made with a blunt instrument, and it is enlarged to maintain a permanent communication between the lateral ventricle and the dura. The benefit was striking, although the cases in which it has been done to date were severe. They proved, however, that it is possible to insert a curved cannula feeling its way along the falx to the lowest part, when it is pushed through the corpus callosum into the lateral ventricle. The first patient was a boy of 10 with hydrocephalus and symptoms indicating pressure and aplasia of the cerebellum. Great improvement followed the intervention. The second patient was a workman of 50 with serous meningitis and intense headache, vertigo and optic neuritis. The process was evidently arrested and the headaches and vertigo have disappeared. The third patient was a sailor of 26, with a tumor in the posterior cranial fossa, and choked disc. Since the puncture of the corpus callosum, the intense headache has subsided and there has been no further vomiting, while the gait has improved. If the puncture had been made months before, vision might have been retained. This case shows the importance of this intervention while waiting for localization of the tumor to become possible. Besides hydrocephalus, with or without tumor, this intervention may prove of great benefit in hypertrophy of the brain. The brain and the skull do not always enlarge in proportion, the authors remark, and it is no mere coincidence that by far the largest proportion of enormously hypertrophied brains are found among epileptics. If the fluid in the ventricles is allowed free escape, benefit may be anticipated, as also in cases of pseudotumors. At first the authors cut a flap about 4 cm. square between the sagittal and coronary sutures, but later found that a drillhole gives sufficient access.

111. **Office Tests of Heart Functioning.**—Waldvogel examines the systolic blood pressure with the patient horizontal and again as the patient stands, and summarizes his findings with 130 patients. This simple test of the systolic blood pressure as the patient lies and stands up can never prove an exertion for the heart, while nervous influences are almost entirely excluded, and the effort is proportionately the same for all human beings. As the patient reclines the Recklinghausen cuff is applied and the Riva-Rocci manometer is applied to the heart region. The patient holds the manometer with his free hand and the systolic pressure is noted twice. Then the patient is told to get up quietly; as he stands he holds the manometer with his free hand, on a level with his heart, and again the systolic pressure is noted twice on the arm bent at the elbow, the wrist lightly supported by the observer. Quick work is necessary, as the pressure soon fluctuates. He tabulates the findings in six tables, the first showing the cases with the same pressure in both positions, the other showing a rise or fall in the pressure, from 5 to 20 mm. or more, from the change of position. It seems evident that a drop of 10 or 20 mm. on standing is an index of a pathologic condition in the heart action, although a drop of 10 mm. is still within the normal range. The greatest difference, 35 mm., was observed in a case of contracted kidney and alcoholism.

116. **Treatment of Scarlet Fever.**—Oppenheimer warns against allowing the child to become chilled. He never exposes the child much for examination, and forbids general baths. After expectant treatment in the first stage he allows, the second or third day, tea diluted with milk, lemonade or water, but nothing else until the appetite returns as the acute toxic symptoms subside. He says that the diet is of more importance in scarlet fever than in any other infectious disease, on account of the tendency to nephritis. It is important to avoid eggs, meat and soup, avoiding even dishes containing eggs. He insists on keeping the child in bed for five or six weeks, as nephritis is liable to develop in the fourth or fifth week. In an experience of 150 scarlet fever patients treated on these principles—avoidance of baths and cold packs and of meat, soup and eggs—he has never had scarlatinal nephritis develop in any instance. He would like an institution to which scarlet fever children could be taken, allowing their mothers to accompany and wait on them, and the family physician to attend his little patient.

119. **Treatment of Hydrocele.**—Mohr reports two cases which demonstrate that injection of a solution of adrenalin after puncture and evacuation has certain advantages over other methods of injection when the effusion displays a tendency to recur. Actual healing has not occurred in either case. In two other cases he operated according to Klapp's technic with good results. This technic can be applied under local anesthesia and ambulant, while it prevents recurrence, and there can be no kinking later of the seminal passages and blood vessels.

120. **Extraction of Needles.**—Haeberlin extols the advantages of fluoroscopic examination, at various angles, of the part containing the needle.

Therapeutische Monatshefte, Berlin.

August, XXII, No. 8, pp. 383-438.

122 *Experiences with Pyocyanase in Treatment of Diphtheria. W. Fackenheim.
123 Intoxication with Bismuth Subnitrate and Its Substitution with Bismuth Carbonate. E. Meyer.

124 *Cardiospasm as Cause of Habitual Vomiting of Infants. (Der Kardiospasmus, eine Ursache des habituellen Erbrechens der Säuglinge.) F. Göppert.
125 *Diagnosis and Treatment of Pityriasis Rubra. A. Halle.
126 *Yoghurt. Löbel.
127 Treatment of Nasopharyngeal Catarrh in Children. (Nasenrachenkatarrh bei Kindern.) A. Hecht.
128 Dosage by Drops and its Physical Bases. (Tropfendosierung und ihre physikalischen Grundlagen.) T. Lohnstein.

Virchows Archiv, Berlin.

August, CXCIII, No. 2, pp. 177-352.

129 Morphology of Liver Glycogen and Structure of Liver Cell. J. Arnold. Commenced in No. 1.
130 Structure of Lobule of Liver under Influence of Splanchnic Nerve. (Bau des Leberläppchens unter dem Einfluss des Nervus splanchnicus.) W. Kolski.
131 Experimental Study of Consequences of Stenosis or Obliteration of Common Bile Duct. (Zur Kenntnis der sog. biliären Leberzirrhose.) T. Tsunoda.
132 The So-called Valve Hematoma. Also Study of the Vascular Supply of Valves of Human Heart. (Klappenhämatome.) F. Hammes.
133 Heart with Three Auricles. (Ein weiterer Fall von Cor triatriatum mit eigenartig gekreutzer Mündung der Lungenvenen.) H. Stoeber.
134 Pathology of Mucosa of Human Esophagus. (Pathologie der menschlichen Oesophagusschleimhaut.) A. Lindemann.
135 Retrogressive Changes in Epiglottis Cartilage and Their Consequences. (Regressive Veränderungen des Epiglottisknorpels und deren Folgezustände.) Id.
136 Ochronosis. F. Landois.
137 Inebriety as Cause of Deaths at Basle, 1892-1896. (Trunksucht als Todesursache.) R. Pfister.
138 A New Parasite Disease. Its Causal Organism and its Endemic Occurence in Various Parts of Japan. (Schistosomiasis japonica.) I. Tsuchiya.

122. **Pyocyanase in Treatment of Diphtheria.**—Fackenheim has applied pyocyanase as adjuvant to serum treatment in 48 cases of diphtheria, including 6 with signs of sepsis. This experience has convinced him that the local spray of pyocyanase is an important aid in severe cases. It seems to destroy the bacteria in the throat and thus prevents further formation of toxin. This action is shown in the rapid subsidence of the throat lesions, the disappearance of the bacilli and the rapid improvement in the general health. Experiments are now under way to test the efficacy of subcutaneous inoculation of the pyocyanase. It will be remembered that the pyocyanase is merely the filtrate of a three-weeks-old culture of the pyocyaneus bacillus. Emmerich assumes the presence of a bacteriolytic enzyme in the fluid on account of the rapid destruction of the bacteria and of the film that forms on the surface of the culture. He uses a Berkefeld filter and reduces the filtrate in a vacuum to one-tenth its volume, as has already been described in these columns.

124. **Cardiospasm as Cause of Vomiting in Infants.**—Göppert describes a peculiar case of habitual vomiting in an otherwise healthy child, commencing at the fourth month. The symptoms suggested regurgitation in some respects, but he finally diagnosed cardiospasm. He introduced a sound about 4 mm. thick, passing it through the nose into the stomach, and poured the child's food into the stomach. There was no tendency to vomiting when the child was fed in this way, and it was gradually trained to physiologic feeding. In three months all disturbances had vanished. By attacking the spasm from below, filling the stomach through the sound, the child was not only able to be properly nourished, but the affection was given a turn for the better and spontaneous recovery inaugurated.

125. **Pityriasis Rubra.**—Halle discusses the differentiation of this affection, calling special attention to the itching, the localization, the prevalence in persons between 15 and 35 years old, the color and scaling and the oval shape of the efflorescences. A spontaneous tendency to heal is pronounced if the parts are kept dry. Baths and rinsing the parts or sweating aggravates the affection, as also hot or alcoholic drinks. He applies with a brush a mixture of equal parts of zinc oxid, Venetian talcum, glycerin and water, dusting copiously with talcum afterward, and washing off every day with olive oil. Tar and naphthol or moist dressings are liable to entail a dermatitis which may prove difficult to cure.

126. **Yoghurt.**—Löbel says that yoghurt—Bulgarian clotted milk—is now the fashion, and seems to be answering all rational expectations. It is not the "elixir of life" which the interviewers claim, but it certainly displays a tendency to expel a harmful intestinal flora and supplant it by a useful flora, as Löbel shows from his own and others' experience.

Wiener klinische Wochenschrift.

August 13, XXI, No. 33, pp. 1175-1202.

139 Modern Views in Regard to the Speech Center. (Revision der Aphasiefrage.) M. Blassberg.
140 Proteolytic Cellular Activity of Malignant Tumors. (Proteolytische Zelltätigkeit maligner Tumoren.) L. Hess and P. Saxl.
141 Avoidance of Dangers of Ocular Tuberculin Reaction. (Gefahren der Ophthalmoreaktion und ihre Vermeidung.) A. Wolff-Eisner.
142 *Symptomatology of Heart Affections. (Zur Semiotik der Herzkrankheiten.) A. Strubell.

142. **Symptomatology of Heart Affections.**—Strubell's long article is an introduction to a study of functional differentiation and treatment of heart disease. He shows how the results of experimental research have thrown light on affections of the circulation. In particular he calls attention to the importance of the work of von Basch, showing that angiosclerosis is merely a change in the elasticity of the vessels. The various degrees of this are: 1, the purely functional vasomotor contraction of the abdominal vessels in the nervous—pseudoangiosclerosis; 2, the transient functional contraction on a toxic base, as in acute nicotin poisoning; 3, the still functional and reparable increase in the elasticity from toxic influences persisting through several weeks, as in acute nephritis; 4, the first durable increase in elasticity, as in subacute or chronic nicotin poisoning, with the first signs of secondary hypertrophy of the heart. The arterial pressure is increased, but may return to normal under appropriate treatment. This is the borderland between pseudo and latent angiosclerosis. These are followed by the three more pronounced types, the most severe including intermittent claudication, ready brain fag, high arterial pressure, inevitable hypertrophy of the heart and, generally, more or less degeneration of the myocardium. The functional reaction is not entirely abolished even in the severest cases. The whole trouble, he says, is the result of increased elasticity of the vessels with more or less disturbance in their capacity for reaction, which may be reduced or morbidly increased.

Zentralblatt für Chirurgie, Leipsic.

August 15, XXXV, No. 33, pp. 993-1016.

143 Pathologic Non-coaptation of the Surfaces in Joints. (Pathologische Gelenkflächeninkongruenz.) G. Preiser.

Zentralblatt für Gynäkologie, Leipsic.

August 15, XXXII, No. 33, pp. 1081-1112.

144 Case of Extraperitoneal Cesarean Section According to Sellheim. (Fall von extraperitonealem Kaiserschnitt nach Sellheim.) H. Luchsinger.
145 *Warning Symptoms of Thrombosis and Embolism. (Kritik der prämonitorischen Symptome der Thrombose und Embolie.) Nacke.
146 *Towel Method of Chloroform Anesthesia. (Chloroformnarkose mit überdeckter Maske.) K. Frankenstein.

145. **Premonitory Symptoms of Thrombosis and Embolism.**—Nacke has analyzed 5,000 maternity cases, especially 40 in which, according to the classic symptoms, thrombosis was inevitable. Only two of these women, however, developed thrombophlebitis, one on the twelfth, the other on the eighteenth day, after delivery. In the others the assumed premonitory symptoms were referable to other casual or preexisting affections, such as rheumatism, influenza, obstipation, nephritic irritation, gallstones or slight appendicitis, chronic pelvioperitonitis, anemia and chlorosis, syphilis or other intestinal, bladder or abdominal affections. On the other hand, in every case of fatal embolism the puerperium had been entirely normal, and death occurred suddenly when the patient first got up. He concludes from this analysis that there are no certain premonitory symptoms, and that we can only aim to prevent embolism by keeping the patient in bed, on suspicion of thrombosis, until the clot has had time to become organized.

146. **The Towel Method of Chloroform Anesthesia.**—Frankenstein's method has already been described in these columns; he here relates further experiences with it and lauds its advantages, its simplicity, its freedom from danger, the unusually small amount of chloroform or ether and the much shorter time required. He gives illustrations of his mode of applying the once folded towel over the mask.

Gazzetta degli Ospedali e delle Cliniche, Milan.

August 18, XXIX, No. 93, pp. 1033-1048.

147 Experimental Pellagra. G. Guyot.
148 Improved Technic for Determination of Elastic Fibers. (Ricerca delle fibre elastiche.) M. F. Felice.
149 *Uric Acid Metabolism During the Subcutaneous Oxygen Treatment of Neuritis and Neuralgia. (Oscillazioni della crasi urica, con speciale riguardo al comportamento dell'acido urico, nelle affezioni nevritiche e nevralgiche in rapporto all' ipodermo-emfisiterapia ossigenata.) T. Salvetti.
150 Benefits from Intravenous Injection of Mercury Bichlorid in Three Cases of Acute Articular Rheumatism. (Iniezioni endovenose di sublimato corrosivo nella poliartrite reumatica.) O. Ortali.
151 Experiences with Maragliano's Specific Treatment of Tuberculosis. B. Chmelar.
152 Connection Between Malaria and Metereologic Conditions. (Recrudescenza malarica in autunno susseguente ad una alluvione.) L. Nelli.
153 Sciatica from Compression by Echinococcus Cyst. P. Marogna.

149. **Uric Acid Metabolism During Oxygen Injections.**—Salvetti has been studying twenty patients with neuralgia or neuritis taking a course of treatment with subcutaneous injections of oxygen according to Bernabei's method. The results confirm the local and general tonic effect of this treatment and the increased elimination of waste matters. His experience reaffirms the assumption that neuralgia and neuritis are the result of the action of toxins, the organism being flooded with waste from sluggish biochemical metabolic processes. Bernabei's technic was mentioned in THE JOURNAL, May 23, 1903, page 1474, and later results with it, May 9, 1908, page 1576. The patients with uncomplicated neuralgia, especially sciatica, were given from 8 to 15 injections of an average of 225 c.c. (nearly 8 ounces) of oxygen. The injections are made at the most painful points of the nerve. The region swells and the gas gradually disappears from the local tissues in from two to twenty-four hours.

Hospitalstidende, Copenhagen.

July 15, LI, No. 29, pp. 849-872.

154 *Operative Treatment of Inveterate Inversion of the Uterus. P. Guildal.
155 *Production of Uric Acid. (Urinsyrens Dannelse hos Mennesket.) I. P. Chrom. Commenced in No. 28.

July 22, No. 30, pp. 873-904.

156 *Determination of Tubercle Bacilli in Urine. (Om en rationel Fremgangsmaade til Paavisning af Tuberkelbaciller i Urinen.) V. Ellermann and A. Erlandsen.

August 5, No. 32, pp. 929-960.

157 Case of Alveolar Echinococcus Cyst. O. Moller.
158 Roentgen-Ray Diagnosis of Pulmonary Tuberculosis. J. F. Fischer and F. Tobiesen. Commenced in No. 31.

154. **Inveterate Inversion of the Uterus.**—Guildal remarks that only three cases have been encountered among the 4,064 gynecologic patients at the Copenhagen Deaconess Hospital. The first patient had complete inversion, resisting attempts at reduction under ether or chloroform, repeated eleven times, and the uterus was finally amputated. In a later case the inversion was reduced by a conservative posterior hysterotomy restoring approximately normal conditions. After an incision in the anterior vaginal vault and palpation of the inverted organ, the rear wall of the uterus was then incised. This allowed the organ to be readily reinverted, as every point of the incision moves in a plane at right angles to the longitudinal axis of the uterus, each describing an arc from behind outward and forward as the organ is reinverted. The incision in the uterus was then sutured in two tiers and the organ restored to place, through the incision in the vaginal vault. If necessary, a second incision can be made, at right angles to the first. A wick was introduced to drain the suture in the uterine wall. The patient has been in good health since this operation, attending to arduous household duties without disturbance. The inversion was only about the size of half an egg (hen's) at first, but it caused repeated hemorrhages and great debility with syncope when any attempt at reduction was made, the patient requiring hospital care for nearly two years. Menstruation continued approximately normal with frequent hemorrhages in the intervals. There has been nothing to suggest that the uterus has become fastened in retroflexion since, which is a possible drawback of the posterior technic. Some surgeons think that the dangers from an ensuing pregnancy are so great that they advise sterilization of the woman at the same time, but Bonté, Dahlgren and Born have witnessed entirely normal pregnancies since an operation of the kind. In any event, the course of a subsequent pregnancy should be supervised with unusual care. If many adhesions are found with inverted uterus, Guildal regards abdominal hysterectomy as the only procedure. There were no adhesions in either of his cases; the patients were primiparæ and the inversion occurred spontaneously soon after forceps delivery in two of the cases.

155. **Production of Uric Acid.**—Chrom in this long biologic study presents the results of much research which, he thinks, demonstrates among other things that the amount of uric acid eliminated in the urine is determined by the amount of substances which generate the ethereal sulphates.

156. **Improved Technic for Detection of Tubercle Bacilli in Urine.**—Ellermann and Erlandsen reported last April an improved technic which they said shows up the tubercle bacilli in sputum from ten to twenty times more effectually than other methods. It was described in THE JOURNAL, June 27, 1908, page 2157. They now describe a modification of this technic for application to urine, which, they assert, is an equal advance over previous methods. The urine is drawn with a catheter and allowed to settle, when the supernatant fluid is decanted and from 10 to 15 c.c. of the sediment are centrifugated. In case of unusual proportions of urates they are removed by heating before centrifugating. After centrifugating the supernatant fluid is decanted, and, after noting the amount of the sediment, the latter is mixed with four times its bulk of a 0.25 per cent. solution of sodium carbonate and kept in the incubator for twenty-four hours at 37 C. (99 F.). If the reaction afterward is still acid it may be necessary to add a little more sodium carbonate and allow the digestion to continue somewhat longer. The upper layer of the supernatant fluid is then decanted and the rest again centrifugated. To the sediment left then, after pouring off the supernatant fluid, is added four times its volume of a 0.25 per cent. solution of sodium hydrate, stirred with a glass rod till dissolved. The whole is then heated to boiling on the water bath. On cooling it is once more cautiously centrifugated, and the sediment then obtained is used for the microscopic slide. This "double method" is required only when negative results are obtained from microscopic examination of the sediment from the first centrifugation. This method gives from ten to fifteen times better results than centrifugation alone, revealing bacilli too scanty for detection by other means. They say that a negative result with their technic is almost certain proof of the absence of tuberculosis.

Books Received

STATE HOSPITALS BULLETIN. STATE OF NEW YORK. Published by Authority of the State Commission in Lunacy. New Series. Vol. 1, No. 1, May, 1908. Paper. Pp. 88. Vol 1, No. 2, July, 1908. Paper. Pp. 276. Utica, N. Y.: State Hospitals Press.

FOURTH ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE. Feb. 1, 1906, to Feb. 1, 1907. Edited by Joseph Walsh, A.M., M.D. Paper. Pp. 430, with illustrations. Philadelphia: Published by the Henry Phipps Institute, 1908.

GLANDULAR ENLARGEMENT. By Arthur Edmunds, M.B., M.S., B.Sc., Lond., F.R.C.S. Eng., Surgeon to the Great Northern Central Hospital. Cloth Pp. 230, with illustrations. Price, $4.50. London: Oxford University Press, 1908.

DISEASES OF THE SPINAL CORD. By R. T. Williamson, M.D. (London), F.R.C.P., Assistant Physician, Royal Infirmary. Cloth. Pp. 432, with illustrations. Price, $5.50. London: Oxford University Press, 1908.

THE LAW IN GENERAL MEDICAL PRACTICE. By Stanley B. Atkinson, M.A., M.B., B.Sc., Justice of the Peace for the County of London. Cloth. Pp. 239. Price, $1.50. London: Oxford University Press, 1908

TWENTY-NINTH ANNUAL MEETING OF THE KANSAS PHARMACEUTICAL ASSOCIATION. Held at Wichita, Kas., May, 1908. Paper. Pp. 104. Topeka: F. M. Stevens & Sons.

THE STRUGGLE AGAINST TUBERCULOSIS IN SWEDEN, 1908. Edited by Sture Carlsson, M.D. Paper. Pp. 200, with illustrations. Stockholm: Centraltryckeriet, 1908.

PROCEEDINGS OF THE SOUTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS, Columbia, S. C., June, 1908. Paper. Pp. 13. Columbia: The R. L. Bryan Co.

THE PRESENT PANDEMIC OF PLAGUE. By Assistant Surgeon-General J. M. Eager. Paper. Pp. 30. Washington: Government Printing Office 1908.